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THE

SCHOOL OF SALERNUM.

AN

HISTORICAL SKETCH

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OF

MEDIÆVAL MEDICINE.

BY

H. E. HANDERSON, A. M., M. D.

(READ BEFORE THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK, FEB. 26, 1878.)

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"From the most remote times medicine has possessed every essential; both a definite principle and a recognized method, by which, during this long period, many valuable discoveries have been made; and others will follow, if only a suitable person, cognizant of what has been already acquired, pursues his investigations from this basis. But he who rejects or disdains the acquisitions of his predecessors, preferring to investigate by another method or under a different form, and yet professes to discover something new, deceives both himself and others. For the thing is impossible."—(HIPPOCRATES: *De Prisca Medicina*, tomus i. p. 24. Kühn's edition.)

THE SCHOOL OF SALERNUM.

THE modern city of Salerno is situated upon the gulf of the same name, and about 30 miles S. E. of the city of Naples. Its population in 1874 numbered about 28,000. The ancient Salernum stood upon a height in rear of the present city, where the ruins of its mediæval citadel may still be seen. The name Salernum first appears in history B. C. 194, when a Roman colony was founded here, as Strabo informs us,[1] to overawe the Picentini, who had aided Hannibal during the second Punic War. Under the Empire, Salernum was a municipal town of some importance, and appears, even at this early day, to have been a health-resort of considerable celebrity among the wealthy inhabitants of ancient Rome. Horace writes[2] from Baiæ (another famous watering-place) to his friend, Numonius Vala, at Salernum, to inquire concerning the climate and surroundings of the latter city. The poet informs us that the well-known hydropathist of Rome, Antonius Musa, had advised him to exchange the warm baths of Baiæ for the cold baths of Salernum, in the hope of relieving a weakness of the eyes with which he was afflicted. The ancient city is also mentioned by Lucanus,[3] Silius Italicus,[4] Velleius Paterculus,[5] and the elder Pliny.[6] During the stormy centuries which immediately followed the downfall of the Western Empire, Salernum submitted to the sway of Goth, Lombard, Frank, Saracen, or Greek

[1] *Geog. E.*, iv. 13. Vid. also Livy, lib. xxxiv. 45.
[2] *Epist.*, i. 15.
[3] *Pharsalia*, ii. 425.
[4] *Punicorum*, viii. 582.
[5] *Hist. Rom.*, i. 15.
[6] *Hist. Nat.*, xiii. 5.

as the vicissitudes of a doubtful war compelled obedience. Under the Lombards it became one of the most flourishing cities of Southern Italy, and was the usual residence of the dukes of Beneventum, whose duchy, for a time, comprised the larger portion of the modern kingdom of Naples.[1] On the expulsion of the duke of Beneventum, A. D. 840, Salernum was erected into an independent principality under Siconulfus, and continued under the rule of his successors until besieged and taken by the famous Norman, Robert Guiscard, A. D. 1075. Subsequently the city fell to the crown of Naples, and the heir-apparent to the throne of that kingdom bore until the fourteenth century the title of "Prince of Salernum."

The origin of the famous medical school of Salernum is enveloped in the deepest obscurity of the Middle Ages. Mazza, an Italian historian of the seventeenth century, says[2] the founders of the school were Rabinus Elinus, a Hebrew, Magister Pontus, a Greek, Adala, a Saracen, and Magister Salernus, a Latin, each of whom taught the art of medicine in his native tongue. He quotes also from Scipio Mazella the statement that Charlemagne, in the year 802, converted the school into a regular college. Freind[3] adopts both of these statements, and adds that the school was founded about the middle of the seventh century. Renouard[4] and Bouchut[5] ascribe the foundation of the school to fugitives from Alexandria on the capture of that city by the Saracens, A. D. 640. Sprengel,[6] Isensee,[7] and Bricheteau[8] ascribe the honor of its origin to the Benedictine monks of Monte Casino; while Giannone[9] and Haller[10] think it was founded by the Saracens soon after their

[1] Giannone, *History of Naples*, translated by James Ogilvie, London, 1729, book vi. chap. i. See also Gibbon's *Decline and Fall of the Roman Empire*, chap. xlix.

[2] *Urbis Salernitanæ Hist. et Antiq.*, Antonio Mazza, Naples, 1681, in Grævius's *Thesaurus Antiq. Italiæ*, tome ix. part iv. p. 63, § 129.

[3] *History of Physic*, London, 1727, vol. ii. p. 218.

[4] *Hist. de la Médecine*, tom. i. p. 444.

[5] *Hist. de la Médecine*, p. 359.

[6] *Hist. de la Médecine*, traduite par Jourdan, tom. ii. p. 356.

[7] *Geschichte der Medicin*, Theil i. p. 207.

[8] *Encyclopédie Méthodique* (Médecine), tom. xii. p. 661.

[9] *Op. cit.*, book x. chap. ii. § 3.

[10] *Bibliotheca Med. Pract.*, tom. i. p. 158.

conquest of Sicily. Baas[1] mentions the names of Giosa, Giuseppe, and Ragenfrid as distinguished teachers at Salernum in the ninth century, and seems to incline to the Benedictine origin of the school; while Daremberg[2] roundly denies all the theories thus far advanced, and believes the school the gradual and imperceptible outgrowth of the circumstances of the times. Each of these views is open to more or less criticism. Charlemagne could not have organized a college at Salernum in the year 802, for (as Giannone proves) his authority over the duchy of Beneventum, never more than nominal, was at this period entirely rejected.[3] The foundation of the school by fugitives from Alexandria is entirely conjectural; its Arabian origin has little evidence in its favor, save that for more than a century the duchy of Beneventum was ravaged by the Saracens, either as enemies or allies of its princes.

On the other hand, Malgaigne[4] and Daremberg[5] agree that there is no evidence of any knowledge of Arabian medicine at Salernum prior to the time of Constantine the African, toward the close of the eleventh century. On one point, however, in the history of the School of Salernum all writers happily agree: I refer to the important influence exerted upon its development by the Benedictine monks of Monte Casino. We have seen that several writers on the history of medicine believe that the school was founded by the monks of this famous monastery. Whether this be so or not, the monastery of Monte Casino, itself a school of medicine of wide reputation in its day, and certainly intimately connected with the School of Salernum, deserves, and will, I trust, excuse, a short digression from our main subject.

Founded by St. Benedict of Nursia (a contemporary of Justinian) A. D. 529, this monastery was situated in the district of Terra di Lavoro, about 50 miles N. W. of the city of Naples, where it occupied the site of an ancient temple of Apollo. The

[1] *Grundriss der Geschichte der Medicin*, Stuttgart, 1876, p. 211.

[2] *Hist. des Sciences Médicales*, Paris, 1870, tom. i. p. 259.

[3] *Op. cit.*, book vi. chap. iii. Charlemagne personally held physicians in little esteem. Vid. Eginhard's *Vita Caroli Magni*, cap. 22.

[4] *Œuvres d'Ambroise Paré, Introduction*, p. 20.

[5] *L'École de Salerne*, Paris, 1861, *Introduction*, p. 22.

rule of St. Benedict enjoined upon the monks of his order the cure of the sick and their treatment by prayer and Christian conjurations, but forbade all public discussion and instruction. St. Benedict himself is credited with numerous miraculous cures, recorded with all due faith and much unnecessary verbosity by the monkish historian of the order.[1] The regulation which forbade public instruction seems, however, to have gradually fallen into abeyance, for we find the abbot Bertharius, toward the close of the ninth century,[2] writing two books on the art of healing; and Sprengel asserts that he was certainly not the first to violate the rule. It is certain also that as early as the tenth century Monte Casino had acquired great reputation as a school of medicine, and was frequented for purposes of medical study by monks from every quarter of the world. A little later (A. D. 1022) Henry II. of Bavaria, emperor of Germany, is said to have been cut for stone at Monte Casino by the famous St. Benedict himself.[3] It is related that during the sleep of the emperor the ghostly saint appeared and operated upon his royal patient with such skill that on awakening he found naught save the stone in his hand and the cicatrix of a wound already healed to convince him of the reality of his cure. Of course the grateful emperor endowed the monastery with numerous additional privileges, and graced the shrine of the saint with rich and costly offerings. Desiderius, who held the abbacy of Monte Casino A. D. 1058–86 (when he was elected pope under the title Victor III.), was also distinguished for his attainments in music and medicine. He founded a new hospital in connection with the monastery, and wrote likewise four books on the miraculous cures wrought by

[1] *Annales Ord. St. Benedicti*, Mabillon, tomus i. p. 89.

[2] *Id.*, tomus iii. p. 250. Also Leo, *Chronicon Sacri Monast. Casinensis*, in Muratori, *Script. Rerum Italicarum*, tom. iv. p. 309 B. Bertharius was slain by the Saracens on his own altar, A. D. 883.

[3] The story can be found in the life of Meinwercus, bishop of Paderborn (cap. xxvi.), preserved in Leibnitz's *Script. Rerum Brunsvicensium*, tom. i. p. 526. The event is here referred to the year 1014, but the *Annales*, tom. iv. p. 288, refer it to the time of consecration of the abbot Theobaldus, A. D. 1022. Leo Marsicanus (*Chron. Casinense*, lib. ii. cap. 43, in *Cursus Patrologiæ Completus*, J. P. Migne, Paris, 1854, tom. 173, p. 633 C) relates the story somewhat differently. Vid. APPENDIX, Note A.

St. Benedict. It was also within the seclusion of the monastery of Monte Casino that Constantine the African, one of the most learned men, and the most famous Christian physician, of his age, composed or compiled his numerous medical treatises. The life of Constantine, as conveyed to us in the chronicles of his time, is filled with all the vicissitudes of the most exciting romance.[1] A native of Carthage, the passion for knowledge led him to pursue his studies in all the prominent schools of the day. Egypt,[2] Bagdad, Babylon, and even India, were visited by him in the prosecution of his scientific labors, and he remained an exile from his home for a period of thirty-nine years, engaged in the cultivation of all branches of knowledge. On his return to Carthage, misunderstood and feared by his former friends, he was accused of the practice of sorcery, and compelled to fly from that city in order to save his life from the ignorance and bigotry of his fellow-citizens. In the guise of a mendicant he escaped to Salernum, which city had been recently captured by the famous Norman, Robert Guiscard.[3] By chance the brother of the king of Babylon[4] was at this

[1] The complete story may be found in the work of Petrus Diaconus, *De Viris Illust. Casinens.*, preserved in Muratori's *Script. Rerum Italic.*, tomus vi. p. 1.

[2] Probably Cairo, where the fourth Fatimite caliph, Moez-Ledinillah (A. D. 953–975), had founded a famous school of medicine and a hospital.

[3] This event took place A. D. 1075. Vid. Ughello's *Italia Sacra*, tomus vii. p. 386 C, and *Chronicon Anonymi Casinens.*, in Muratori's *Scriptores Rerum Italicarum*, tomus v. pp. 55 and 139.

[4] Either the good deacon is romancing, or by Carthage in this story he must intend Tunis. Carthage, rebuilt by Augustus, had in the third century a population of no less than 400,000; captured by the Vandals A. D. 439, it gradually decayed, until utterly destroyed by the Arabs under Hassan A. D. 698. Who is intended by the "king of Babylon" it would be difficult to say. Pausanias (A. D. 135) says that in his day the walls alone of Babylon remained, and St. Jerome (A. D. 400) gives the account of a monk, at that time living in Jerusalem, who had been at Babylon, and who said that the space formerly occupied by the city was converted into a chase for wild beasts, and used by the kings of Persia as a hunting-ground, the walls having been repaired for that purpose. Benjamin of Tudela, visiting Babylon about the middle of the twelfth century, speaks of the city as a mass of ruins, in which, however, the outlines of thirty miles of streets could be traced, while the foundations of the famous Tower of Belus were still visible. At this period some 20,000 Jews resided within a circuit of twenty miles, and a synagogue, said to have been built by Daniel, was in existence, and was still used as a place of worship

time sojourning at Salernum, a visitor at the court of Duke Robert. In spite of his disguise, the Eastern prince recognized Constantine, whom he had known familiarly at the court of his brother, and on his warm recommendation the physician was appointed private secretary to Guiscard. It is also said that he taught for a season in the School of Salernum. Ere long, however, the duties of his new position became irksome to Constantine, and he withdrew to the cloisters of Monte Casino, where he devoted himself to the preparation of his numerous medical works.[1] These consist, for the most part, of translations or paraphrases of the Greek and Arabian medical writers, often transcribed almost verbatim, without any credit to the original author. Thus, the treatise commonly known as *Loci Communes*,[2] dedicated to the abbot Desiderius, is taken almost literally from Haly Abbas; the *Pantegni*[3] is a translation from the same author, though his name is not even mentioned; the *Viaticum* is copied from Ibn Edjezzar, an Arabic writer of the tenth century; the treatises *De Urinis* and *De Febribus* are translations from Isaac Ibn Soleiman,[4] while the *De Melancholia* is copied from Rufus of Ephesus. A treatise entitled *De Stomachi Affectionibus Naturalibus et Preter Naturam*, dedicated to St. Alphanus, forty-third bishop of Salernum, displays both more originality and greater intelligence. Sprengel speaks of the translations of Constantine as unfaithful, and calls his style barbarous. But we can scarcely expect classic Latinity in the eleventh century, and the works of Constantine were highly esteemed during the Middle Ages, winning for their author the title of "Christi et Christianis Magister." We must at least assign to Constantine the credit of reviving in the West the

[1] Benjamin of Tudela, translated by A. Asher. London, 1840, vol. i. p. 109.

[2] For a complete catalogue of the works of Constantine consult Montfaucon, Bibliotheca Script. Medicorum, Venetiis, 1756, lib. iii. p. 115. Constantine died A.D. 1087.

[3] De Communibus Medicinæ Seu Necessariis Libri is the full title.

[4] De Humorum Quantitate et Qualitate.

[5] Consult Hist. de la Méd. trans. par le Dr Daremberg. Paris, 1879, tom. ii. pt. 1, and tom. i. pp. 552-553. Also Kaiser, Biblioth. Med. Pract., tom. i. p. 19. Isaac Ibn Soleiman was a Jewish medical writer of the tenth century.

study of Hippocrates and Galen,[1] and it is generally supposed that he was the first to introduce into Europe a knowledge of Arabian medicine also.

From the cloisters of Monte Casino the Benedictines at an early day spread to Salernum, and by the middle of the tenth century no less than three monasteries of this order had been founded in that city.[2] The relics of St. Susanna, St. Thecla, and St. Archelaïs, here preserved, were credited with numerous miraculous cures, and the formal transfer of the reputed relics of the apostle St. Matthew to the church of St. Mary at Salernum in the year 954 is recorded with the utmost solemnity in the annals of the period.[3]

Returning now, for a moment, to the disputed question of the real origin of the medical School of Salernum, it seems a theory reasonable in itself, and consistent with the views of most of the historians already mentioned, to suppose that physicians, and, possibly, even medical teachers, had existed at Salernum even as early as the seventh century, but that the organization of a regular school of medicine was due to the influence and exertions of the Benedictines of Monte Casino at a later period—perhaps in the ninth or early part of the tenth century.

At all events, the names of Salernian physicians are mentioned in the annals of the kingdom of Naples as early as the middle of the ninth century, and about one hundred years later we read of Peter V., thirty-third bishop of Salernum, described as a man "medicinæ artis insignis."[4] Toward the close of the tenth century (A. D. 984) Adalberon II., archbishop of Verdun, a victim, as is conjectured, of vesical calculus, visited Salernum for the

[1] Constantine translated from the Arabic and dedicated to his pupil, Atto or Hetto, the commentary of Galen on the *Aphorisms* of Hippocrates.

[2] Vid. *Annales Ord. St. Benedict.*, tom. iii. p. 463, and Ughello, *Italia Sacra*, tom. vii. p. 359.

[3] *Chronicon Cavense*, in Muratori, tom. vii. p. 920 C. Johannes Eutropus, who visited Salernum A. D. 1535 in the train of the emperor Charles V., speaks of the city as "civitas maritima olim insigni studiorum academia nobilis et insignis," and describes, among other wonderful things, the relics of St. Matthew, "e quibus distillat liquor, quem manna miraculosam vocant, plurimis morbis et languoribus præsentissimum antidotum et remedium" (*Diarium Expeditionis Tunetanæ a Carolo V., Imp.*, in Schardius, *Rerum Germanicorum Scriptores*, tom. ii. p. 341).

[4] Ughello, *Italia Sacra*, tom. vii. p. 363 B. Peter V. flourished A. D. 958–969.

purpose of consulting its physicians. That this visit was not a success, at least medically, may be inferred from the next few lines of the chronicle, which briefly record the death of the unfortunate prelate.[1] A century later, Bohemond, the elder son of Robert Guiscard, was sent to the same city for treatment of a wound received in fighting against the Greeks.[2] His subsequent experience of the treachery of his physicians will be recorded upon a later page.

The earliest medical writings of the School of Salernum which have been preserved to our day are found in the *Compendium Salernitanum*, a sort of medical encyclopædia compiled from the works of the principal physicians of Salernum, and discovered in MS. by Dr. G. E. T. Henschel, professor of medicine in the University of Breslau, in the year 1837.

Among the more prominent authors quoted in the *Compendium* were Petronius, Gariopontus, Cophon, Trotula, Ferrarius, Bartholomæus, Johannes Afflacius, and Platearius. Petronius or Petrocellus, who wrote about A. D. 1035, is credited with a treatise on practice which, according to Daremberg,[3] already displays some traces of the materia medica of the Arabians, though such only as imply commercial intercourse rather than medical association. A few years later flourished a famous physician and teacher of Salernum variously styled Gariopontus, Garimpotus, Warmipotus, or Raimpotus, and of whom Petrus Damianus speaks in the highest terms.[4] Gariopontus probably wrote about A. D. 1040, and his best-known work, entitled *Passionarius Galeni*, is a treatise on practice, said to be copied almost entirely from Theodorus Priscianus, a Constantinopolitan phy-

[1] This visit is related by Hugo, abbot of Flavigny (*Chronicon*, lib. i., in Migne's *Cursus Patrol. Complet.*, tom. 154, p. 196 A), and more fully by Bercarius (*Hist. Brevis Episcop. Virdun.*) in D'Achery's *Spicilegium*, tom. ii. p. 238.

[2] "Buamundum vero, qui vulneratus fuerat in certamine, ut curaretur misit ad medicos Psalerniæ, quorum fama per orbem admodum divulgata est excellentia medicinalis peritiæ" (Ordericus Vitalis, *Hist. Eccles.*, lib. vii. cap. vi.). This occurred A. D. 1085.

[3] *L'École de Salerne*, *Introduction*, p. xxxvii.

[4] Tom. iii. opus 42, in *Cursus Patrol. Complet.*, tom. 145, p. 671: "Dicam quod mihi Guarimpotus senex, vir videlicet honestissimus, apprime literis eruditus ac medicus retulit." Damianus lived A. D. 1030–72, and Gariopontus was considerably his senior.

sician of the fourth century.[1] A copy of this work, published at Basle in 1536 by Henricus Petrus, is preserved in the Library of the New York Hospital.[2] This edition consists of eight books, five on special diseases (which are discussed in order of location from head to foot), and three on the subject of fevers. For the benefit of the curious, and to give an idea of the author's style, I quote a portion of chapter vi.:

"DE EPILEPSIA.

"Epilepsiæ genera sunt duo. Unum est in quo subito cadunt nescientes et contractione pedum manuumque. Patiuntur et cervicis tremorem. Aliud in quo spumant et stertunt, nec contrahuntur membra cum ceciderint, quos vulgus dæmoniacos dicit. Sed hi quidem ex parte sentiunt, illi vero omnino sine sensu sunt. Hæ causæ nascuntur de sanguine viscido, id est amaro, et de felle nigro vitiato. Quæ cum se miscuerint, cerebrum petunt, in quo principaliter anima habitat, quo conturbato, cadunt."

"CURA.

"Jejuni radices in oxymelle infusas quandiu manducent, et supra oxymel quod restitit mittis calidam satis, et dabis bibere ad satietatem, et post horam digitis missis in ore vomitum provocabis. Quod si vomere non potuerint, æris usti drachm. i. cum olei cochleariis duobus immiscebis, et intincta penna in ore missa vomitum provocabis. Post hæc phlebotomas; hoc quidem in principio causæ utile est, nulla alia causa impediente. Sternutatione eis provocentur aut ex elleboro aut ex castoreo, aut ex pipere, vel euphorbio seu pyrethro applicando naribus, vel infundendo," etc., etc.

Malgaigne,[3] following Reinesius, ascribes also to Gariopontus a treatise entitled *De Dynamidiis*, usually enumerated among the works of Galen. This is a treatise chiefly on materia medica, in which an effort is made to deduce the therapeutic virtues of

[1] Sprengel, *op. cit.*, tom. ii. p. 358.

[2] In the legacy of Dr. John Watson, No. 7078. For the liberty of consulting this invaluable collection I am indebted to the courtesy of Dr. John L. Vandervoort, the librarian.

[3] *Œuvres d'Ambroise Paré*, Int., p. xxi.

drugs from their color, figure, or other physical characteristics. A third work, *De Chirurgia*, by the same author, is supposed to have been lost. Sprengel speaks of Gariopontus in the most disparaging terms, says that everything of value in his works is copied from Galen, Oribasius, or Aëtius, and quotes a most absurd passage in evidence of the author's ignorance and credulity.[1] It must, however, be borne in mind that Gariopontus was a professed compiler, and made little or no claim to originality. That he shared in the superstition of his age proves merely that he was human, while it must be admitted that we find scattered here and there throughout the *Passionarius* evidences of considerable skill in diagnosis and judgment in prognosis. Some of his remarks on the classification and symptomatology of fevers display also no little acuteness of observation. Gariopontus often cites "noster Hippocrates," and occasionally certain other physicians, whose names, Plistonicus, Acrisius, Eleolates, etc., suggest a Grecian origin. For the same reason Gariopontus himself has been considered a Greek, and it has been conjectured that he practised in the islands of the Archipelago before coming to Salernum. No acquaintance with the medicine of the Arabians appears in any of his works—strong evidence that Arabian science had not yet reached Salernum.

The year 1057 is distinguished in the annals of Salernum by the visit of the famous abbot Desiderius of Monte Casino, whose name has been already mentioned in the brief sketch of the monastery over which he presided. Broken in health, as the chronicle informs us,[2] by too much abstinence and too frequent vigils, the invalid abbot came to Salernum to refresh himself by a period of relaxation from the onerous duties of his office, and to obtain the best medical advice which the age could afford. A year or two later a learned monk, Rudolphus, surnamed "Mala Corona," a man distinguished for his knowledge of the liberal arts, and especially medicine, sojourned for a time at

[1] *Op. cit.*, tom. ii. p. 359: "Apud Delphos enim insulam molaris dens tantum dolens ab imperito medico avulsus causa fuit mortis philosophi; quia medulla dentium a cerebro principatum habens, dum crepuerit, in pulmonem descendens occidit philosophum." The extraction of teeth was considered by physicians a formidable operation in the time of Gariopontus, though practised freely enough by itinerant quacks.

[2] *Annales Ord. St. Benedict.*, tom. iv. p. 573.

Salernum,[1] attracted by its already extensive reputation as a school of the healing art. Here, however, he found no one able to compete with him in medical knowledge except a person described as "quandam matronam," and popularly conjectured to have been the famous Trotula, of whom I shall speak more fully hereafter. At this period (A. D. 1058–85) St. Alphanus was archbishop of Salernum, a man held in the highest esteem by the reigning pope for his skill in both medicine and music, two arts which seem to have been frequently associated in those days. To the pen of this prelate is ascribed a treatise entitled *De Quatuor Humoribus*, unfortunately no longer extant.[2]

The only other writers of the School of Salernum during the eleventh century whose names seem worthy of mention are Bartholomæus, Ferrarius, and Johannes Afflacius, all of whom flourished just at the close of the century.[3] Bartholomæus wrote a treatise on practice which, Daremberg informs us, is rather in advance of the works of his contemporaries, and contains some peculiar ideas on the origin and classification of fevers.[4] Bart. Ferrarius left a treatise, *De Febribus*, an unedited manuscript of which exists in the Library of Oxford.[5] The work may also be found in the *Compendium Salernitanum*. Johannes Afflacius is credited with treatises entitled *Curæ*, *Liber Urinarum*, and *De Febribus*.[6] He is said to have been a disciple of Constantine Africanus.

The preaching of Peter the Hermit, which marks the close of the eleventh century, was followed by an outburst of crusading enthusiasm that speedily converted Europe into one vast camp. The situation of Salernum on the route of the Western Crusaders assisted greatly in extending the reputation of its school of medicine, and the ordinary results of the movement

[1] *Annales Ord. St. Benedict.*, tom. iv. p. 594.

[2] Daremberg conjectures that the treatise *De Quatuor Humoribus ex Quibus Constat Humanum Corpus*, published by De Renzi in his *Collectio Salernitana* (tom. ii. pp. 411, 412), may be the identical work.

[3] Vid. De Renzi, *Storia della Medicina in Italia*, Napoli, 1845, tom. ii. p. 113 (*Addizioni*).

[4] *L'École de Salerne, Introduction*, p. xlvi.

[5] *Id.*, p. lxviii. (*Appendice*).

[6] *Id.*, p. xvii., Note 1, and p. xli. Baas considers Joh. Afflacius another name for John of Milan.

of large bodies of men, together with the casualties of a fierce and bloody contest, enlarged the field of experience of its physicians. Salernum became a favorite resort of the leading Crusaders when disabled by wounds or disease. Robert of Normandy, son of William the Conqueror, stopped here, on his return from the Holy Land, to obtain medical advice concerning a fistulous ulcer of the arm, the result of a poisoned wound received at the siege of Jerusalem, A. D. 1099. The physicians of Salernum decided that the ulcer could be healed only by sucking out the poison, and as this process was deemed highly dangerous to the recipient of the noxious substance, no one volunteered to perform the delicate office. Robert had, however, recently married a noble lady of Salernum, Sibyl, daughter of Geoffrey, earl of Conversana, renowned equally for her beauty and her virtue. His bride besought of her new-made lord permission to suck out the poison from his wounded arm, but Robert sternly and absolutely refused. The noble lady, however, not to be defeated in her generous design, took advantage of the unconsciousness of her husband during sleep, sucked out the poison, and thus healed the wound.[1] Robert remained at Salernum, enjoying the generous hospitality of his countrymen, the Guiscards, until the death of his brother, William II. (Rufus), opened to him a path to the throne of England. It was on the departure of the Norman prince from Salernum to invade England that John of Milan, who then presided over the medical school in that city, is supposed to have composed the famous work usually entitled *Regimen Sanitatis Salerni*.[2] This poem, under the various titles *Schola Salernitana*, *Medicina Salernitana*, *De Conservanda Bona Valetudine*, *Flos Medicinæ*, etc., enjoyed the most unexampled popularity during many succeeding ages, and was in fact the *vade mecum* of every well-educated physician for several centuries.[3] M.

[1] Giannone, *op. cit.*, book 10, chap. ii. § 3. He refers the story, I believe, to Renatus Moreau, a physician of Paris, who edited the *Schola Salernitana* in 1625. Vid. Haller (*op. cit.*), tom. i. § 160.

[2] Vid. Vossius, *De Philosophia*, cap. xii. § 37. Pagi, in his notes to Baronius (*Annales Ecclesiast.*, *ad an.* 1087), says the poem was sent to Edward the Confessor A. D. 1066, but I find nothing to confirm this statement, which conflicts with the views of almost every other writer.

[3] Zach. Sylvius, in an edition of the *Schola* published at Rotterdam in 1657,

Baudry de Balzac counts from 1474 to 1846 no less than two hundred and forty different editions of the *Schola*, and more than one hundred manuscript copies of the poem are to be found in the various European libraries. It has been translated into English four times,[1] and ten editions of these translations have been published. The last English version was published by Prof. John Ordronaux, LL.D., in 1871.[2] The *Regimen* is written in the leonine or rhyming verse so popular during the Middle Ages, and discusses in the form of metrical proverbs or aphorisms the six "non-naturals" of the school of Galen—viz. air, food, exercise, sleep, the excretions, and the passions. Each of these is noticed in the prefatory stanza or dedication addressed to the king of England, as Robert is by courtesy called:

"*Anglorum regi scribit schola tota Salerni.*
Si vis incolumem, si vis te vivere sanum,
Curas tolle graves, iracundi crede profanum.
Parce mero, cenato parum, non sit tibi vanum
Surgere post epulas. Somnum fuge meridianum.
Ne mictum retine, nec comprime fortiter anum.
Hæc bene si serves, tu longo tempore vives."

Translated by Prof. Ordronaux:

"Salerno's school in conclave high unites
To counsel England's king; and thus indites:
If thou to health and vigor wouldst attain,
Shun mighty cares, all anger deem profane;
From heavy suppers and much wine abstain;
Nor trivial count it after pompous fare
To rise from table and to take the air.
Shun idle noonday slumbers, nor delay
The urgent calls of nature to obey.
These rules if thou wilt follow to the end,
Thy life to greater length thou may'st extend."

says, "Nullus medicorum est, qui carmina Scholæ Salernitanæ ore non circumferat, et omni examine non crepet."

[1] Viz., in 1575, 1607, 1617, and 1871. The first translation exists in MS. in the Library of Corpus Christi College, Oxford, but has never been published. Vid. Ordronaux's translation, Introduction.

[2] *Code of Health of the School of Salernum*, by John Ordronaux, LL.D., Philadelphia, 1871.

A few other stanzas will at once convey an idea of the work, and reveal the antiquity of some of our modern proverbs:[1]

"De Cœna.

"Ex magna cœna stomacho fit maxima pœna;
Ut sis nocte levis, sit tibi cœna brevis."

"De Potu.

"Si tibi serotina noceat potatio vini,
Hora matutina rebibas, et erit medicina."

"Salvatellæ Effectus.

"Dat salvatella tibi plurima dona minuto;
Purgat hepar, splenem, pectus, præcordia, vocem;
Innaturalem tollit de corde dolorem." [2]

The first edition of this poem (published at Montpellier in 1480, with a commentary by Arnold de Villa Nova) contained only 362 lines,[3] and its character was essentially dietetic. Later editors added to the original text many verses gathered from all sources and discussing all branches of medicine. In this way De Renzi succeeded in collecting no less than 3520 verses, many of them taken from Macer Floridus or Ægidius of Corbeil, others from unknown sources. The original text, as published by Arnold de Villa Nova, was everywhere in strict accord with the doctrines of Hippocrates and Galen. Not a word revealed the influence of Arabian medicine. The later additions, however, were less orthodox, and in some cases even quite contradictory to the teaching of the early Greek physicians. Daremberg denies the unity of authorship of the poem in any of its various forms, but considers it the combined work of successive medical rhapsodists between the middle of the eleventh and the beginning of the fifteenth century. This view, though fatal to much of the romance associated with the poem, certainly explains satisfactorily many of its peculiarities.[4]

[1] Several editions of the *Schola* may be found in the Library of the New York Hospital—viz. Nos. 6953, 7071, and 7075.

[2] The ancients ascribed to the *Vena salvatella* considerable importance in the human economy. Hence the name *salvatella*, from *salvere*, "to be in good health." Bleeding from this vein was considered especially efficacious.

[3] See Nos. 7075 and 6664 (p. 130) in New York Hospital Library.

[4] On this whole subject consult Daremberg, *L'École de Salerne, Introduction*, pp. 55–60.

During the twelfth and thirteenth centuries the glory of the School of Salernum reached its zenith. Under the fostering care of Roger III., king of Naples and Sicily (1130–54), and his successors, William I., surnamed "the Bad" (1154–66), William II., "the Good" (1166–89), and more especially Frederick II. (1212–52), it became the most famous school of medicine in Europe.[1] Ordericus Vitalis, an ecclesiastical historian of the first half of the twelfth century, speaks of Salernum as the seat of the chief schools of European medicine from a remote antiquity;[2] and the celebrated Jew, Benjamin of Tudela, who travelled from Spain to India, visiting Salernum A. D. 1165, calls it the principal medical university of Christendom.[3]

Within the first quarter of the twelfth century flourished the younger Cophon,[4] Archimathæus, and Nicholas surnamed "Præpositus," all of whom were distinguished teachers of the School of Salernum. Archimathæus, probably the elder of the three, has left us two medical treatises of much interest to the student of the history of our art. The first, entitled *Practica*, is not a systematic treatise on the practice of medicine, but rather a collection of the histories of cases observed in the practice of the author; resembling, therefore, our clinical treatises. It is worthy of remark that this is the first work of the kind met with since the *Epidemics* of Hippocrates. Daremberg informs us[5] that, though the author's diagnosis is far from perfect, the work yet shows a good observer, a practical physician, and a bold therapeutist, who does not hesitate to employ even arsenical fumigations in chronic catarrh. The pathology and therapeutics of Archimathæus are in entire accord with the teachings of Hippocrates and Galen, and display no traces of the influence of Arabian medicine. The second treatise by the same author, entitled *De Adventu Medici ad Ægrotum*, conveys to us so com-

[1] Thomas Aquinas (1224–74), the great theologian, writes, "Quatuor sunt urbes ceteris præeminentes, scilicet, Parisius in scientiis, Salernum in medicis, Bononia in legibus, Aurelianis in actoribus" (*De Virtutibus*, cap. vi.).

[2] *Hist. Ecclesiast.*, lib. iii. cap. xi. The story of Rudolphus (Mala Corona) is also here related.

[3] *Itinerary*, etc., p. 43.

[4] The elder Cophon is mentioned by Trotula, but is otherwise unknown. Vid. Trotula, cap. xvii., *De Difficultate Partus*.

[5] *L'École de Salerne, Introduction*, p. xlv.

plete a picture of the medical customs of the age that I make no apology for a somewhat long quotation:[1] "Let the physician when going to visit his patient," says Arimathæus, "place himself under the protection of God and the guardianship of the angel who accompanied Tobias. On the way he will inquire of the person who has come to summon him the condition of the patient, in order to form a probable opinion of the affection which he will have to treat, so that after having examined the urine and felt the pulse, if he does not at once recognize the disease, he will be able at least, thanks to the information already acquired, to inspire confidence in the patient by proving through his questions that he has divined some of his sufferings. It is well that the patient, before the arrival of the physician, should have made his confession or promised to do so; for if the physician is obliged to suggest it he will believe his condition desperate, and anxiety will aggravate his disease. Besides, more than one malady which proceeds from a disturbed conscience is cured by reconciliation with the Great Physician. On entering the room the physician salutes with a modest and grave air, manifests no haste, seats himself to take breath, praises, if occasion offers, the beauty of the situation, the neatness of the house, or the liberality of the family. In this manner he wins the goodwill of the bystanders and allows the patient time to recover from his first emotion." All kinds of precautions are indicated for examining the pulse and the urine. Then the author, who has regulated so minutely the ceremonial of entrance, forgets not to furnish the best advice on the manner of withdrawal: "To the patient promise recovery; to the friends declare that he is very ill. If he gets well, your reputation is increased; if he dies, it will be said that you foresaw his death. Let not your eyes dwell upon his wife, daughter, or maid, however fair they may be. This would forfeit your honor and compromise the safety of the patient by drawing upon his house the wrath of God. If, as is customary, you are asked to dine, be neither indiscreet nor exacting. Unless compelled to do so, never take the place of honor, though it is reserved for the priest and the physician. With a rustic, taste everything without mak-

[1] *L'École de Salerne, Introduct.*, p. xlii.

ing any remarks on the homeliness of the fare; if, on the contrary, the table is luxurious, be careful not to deliver yourself entirely to the pleasures of the palate. From time to time inquire concerning the condition of the invalid, who will be delighted to see that you do not forget him even amid the attractions of the banquet. Upon leaving the table go to the bedside, assure the patient that you have received every attention, and especially do not forget to manifest great solicitude in the proper regulation of the diet of the invalid himself."

Nicholas Præpositus, a director of the School of Salernum and one of its best-known authors, flourished about the same period. He composed an *Antidotarium* of wide reputation in its day and the standard pharmacopœia of Salernum for several centuries. This work is a compilation of complex and superstitious remedies dignified with high-sounding and ridiculous titles, apparently to cover their innate absurdity with the shield of an unintelligible name or a saintly reputation. Thus we find the confection styled "Adrianum," consisting of thirty-eight ingredients; the "Athanasia," consisting of thirty-five; the "Evangelon," the "Antimoron," the "Benedicta," the "Esdra," the "Emplastrum apostolicon," the "Potio Sancti Pauli," and numerous similar compounds, the composition and therapeutic virtues of which are described with great minuteness. The "Confectio Esdræ" consisted of no less than forty-eight simples, among which the most familiar are rue, parsley, zedoary, pennyroyal, wormwood, thyme, hyssop, calamus, gentian, alder, storax, horehound, and cassia. The complexity of this compound is only equalled by the sanctity of its origin and the wide range of its healing virtues. Thus the author says:

"Esdra dicitur quia propheta in Babylonia in exilio positus eam primo invenit. Datur melancholiis, timidis et quibus in est malus appetitus prodest. Valet etiam comedentibus carbones et tuphos et testas ollarum, et ad nimiam cerebri frigiditatem. Valet ad dolorem et putredinem aurium ex rheumatica causa. Et si hoc modó fuerit aptata, fac licinium de panno vel bombace et in capite licinii pone parum olei muscellini, et super ponatur Esdra, et in aure patientis immittatur. Ad difficilem partum mulieris satis valet si cum succo artemisiæ fuerit distemperata, vel sabinæ, utroque lateri ab umbilico inferius inuncta. Pro-

dest ad tussim veterem vel humidam distemperata cum succo ptisanæ vel amyli. Valet ad scissuras labiorum si ex ea fuerint inuncta. Valet contra venenosos morsus animalium, serpentum, ranarum et aliorum reptilium et contra morsum canis rabidi," etc.

The "Emplastrum apostolicon," so named from the supernatural virtues of the compound, is highly lauded for its efficacy in discussing swellings, softening cicatrices, extracting weapons, etc., while the "Potio Sancti Pauli," composed of nitre, antimony, sal-ammoniac, calamus, colocynth, and a host of other drugs, is equally commended in epilepsy, catalepsy, analepsy, and similar affections. Nevertheless, in spite of its absurdity and superstition, the *Antidotarium* of Nicholas ranked high as a pharmacopœia during the Middle Ages, and enjoyed the honor of a commentary by several subsequent writers. It is also worthy of remark that this work contains a table of weights, corresponding very closely to our apothecaries' weight—viz.:

20 grana	make	1 scrupulus;
3 scrupuli	"	1 drachma;
1½ drachmæ	"	1 hexagium;
6 hexagia	"	1 uncia;
12 unciæ	"	1 libra;
2½ libræ	"	1 sextarius.

A second treatise, entitled *Quid pro Quo*, is also ascribed to the pen of Nicholas. This is merely an alphabetic list of equivalent drugs—*i. e.* drugs capable of replacing each other in prescription; thus,

"Pro abrotano, absynthium vel origanum vel polium."
"Pro absynthio, abrotanum vel origanum."
* * * * *
"Pro pipere, juniperum vel zingiber."
"Pro zingibere, pyrethrum," etc.

This list is followed by a table of synonyms of many articles of the materia medica.[1]

[1] The *Antidotarium* and *Quid pro Quo* of Nicholas, with the commentary of Platearius on the former treatise, may be found in the Library of the N. Y. Hospital, Nos. 6645 and 6646. A work entitled *Dispensarium ad Aromatarios*, also ascribed to Nicholas, is found in No. 6663. But as this work quotes Saladin d'Ascoli (1447), Giov. di Tornamira (1400), and Bart. Montagnana (1450), it is evidently from another pen. Mangetus ascribes the treatise to Nicholas Myrepsus, a Greek physician, whom he assigns to the sixteenth

Cophon the Younger, who also flourished during the first quarter of the twelfth century, has left us two medical treatises, the one entitled *Ars Medendi*, the other, *De Anatomia Porci*. The first is a work on general and special therapeutics. The author divides remedies into four great classes—viz., laxatives, astringents, restoratives, and digestives or alteratives; and the chief portion of his treatise is occupied with the discussion of the proper use of these various agents. Sprengel[1] confounds the junior Cophon with his father, who was a contemporary of, and mentioned by, Trotula; but as the *Ars Medendi* quotes Constantine Africanus and Nicholas Præpositus, it is evident that it must have been the work of a later writer. The tract *De Anatomia Porci* is interesting as the only anatomical treatise of the School of Salernum which has been preserved to us, and as an index of the degradation of anatomical science in the age of Cophon.[2] Sprengel, however, directs attention to the following passage as indicating a very near approach at least to a knowledge of the lymphatic system:

"Ibi fit chilis vena, in qua infiguntur capillares venæ; quæ propter nimia parvitate videri non possunt, per quas urina cum quatuor humoribus mittitur ad renes."

Daremberg, who discovered in one of the European libraries a treatise on practice written by Cophon, says that he describes certain diseases not noticed by other physicians of Salernum, as, *e. g.*, ulceration of the palate and trachea, polypi, scrofulous diseases of the throat, condylomata, etc. He also informs us that, after the example of both his contemporaries and predecessors, Cophon distinguishes the medicine of the poor from that of the rich, not that he appears to have any less care for the poor, but solely on the principle that the rich are fastidious and wish to be cured pleasantly, while the poor care only to be cured and dread expense. Accordingly, he purges the nobility with powdered rhubarb, the peasantry with an infusion of myroba-

century. Most modern authorities, however, assign Nicholas Myrepsus to the middle of the thirteenth century. The real author of the *Dispensarium* is therefore unknown. (Vid. Haller, *Bib. Med. Pract.*, tom. i. § 116.)

[1] *Op. cit.*, tom. ii. p. 358.

[2] The *Ars Medendi* may be found in the Library of the N. Y. Hospital, Nos. 6645 and 6646. The latter edition contains also the tract *De Anatomia Porci*, annexed to the *Ars*.

lanus, with or without sugar. He devotes much attention also to overcoming the dislikes of his patients, and has a thousand expedients to make them swallow the most disgusting doses.[1]

The names John and Matthew Platearius are of frequent occurrence in the historical records of Salernum, and have proved a fruitful source of confusion to medical historians. Isensee,[2] De Renzi,[3] and Baas[4] consider John Platearius the father of Matthew, and fix his period in the first quarter of the twelfth century. Sprengel, on the contrary,[5] insists that John should properly be assigned to the fifteenth century, three hundred years later than the age of Matthew. Finally, Daremberg declares[6] that there were two individuals named John Platearius, of whom the senior flourished in the latter half of the eleventh century, and was not improbably the husband of Trotula, while the junior lived early in the twelfth century, and was the father of Matthew Platearius. Equal confusion exists with regard to the works of these authors. Three medical treatises are ascribed to the Platearii—viz.: *Practica Brevis pro Curandis Morbis*, *De Simplicibus Medicamentis* (called also, from its initial words, *Circa Instans*), and *Glossæ in Antidotarium Nicolai.* Mazza assigns these all to John Platearius, without so much as mentioning even the name of Matthew. Isensee, however, and most other writers make John Platearius the author of the *Practica Brevis*, and assign the other two treatises to Matthew. The *Practica* opens with a consideration of fevers, after which other diseases are discussed, mainly in the order of location from head to foot.[7] The work is full of ignorance and superstition, though following in most respects the teachings of Galen and Alexander Trallianus. The author describes epilepsy as follows:

"Epilepsia est opilatio principalium ventriculorum cerebri cum diminutione sensus et motus. Dicitur epilepsia ab epi, quod est supra, et lepsis, quod est lesio. Epilepsia, id est superiorum lesio."

The treatment consists in bleeding by cups between the shoul-

[1] *L'École de Salerne, Introduction*, pp. xlvi.–xlviii.

[2] *Op. cit.*, Theil i. p. 211.

[3] *Op. cit.*, tom. ii.

[4] *Op. cit.*, p. 212.

[5] *Op. cit.*, tom. ii. p. 360, note 4.

[6] *L'École de Salerne, Introduction*, pp. xxxv. and xxxvii.

[7] The work may be found in the Library of the N. Y. Hospital, No. 6833.

ders, and the administration of the eggs of a raven. It is curious, however, to notice the hepatic origin of diabetes hinted at in the following passage:

"Diabetes est immoderata attractio urinæ ab epate ad renes. Fit autem ex distemperantia renum vel lumborum in calitate vel siccitate," etc.

About the middle of the twelfth century flourished Matthew Platearius and Bernard the Provincial. To the former, whom we have already mentioned, are ascribed a commentary on the *Antidotarium* of Nicholas Præpositus and a treatise, *De Simplici Medicina.* The commentary gives us the mode of preparation and dose of most of the formulæ of Nicholas, with laudations of their marvellous efficacy. The *De Simplici Medicina*, or *Circa Instans*, discusses the origin of numerous drugs, their various sophistications, and finally their uses.[1]

The name of Bernard the Provincial is so intimately associated with that of Magister Salernus that I venture to ignore the chronological order and consider the two authors together. It will be remembered that Magister Salernus was mentioned by Mazza as one of the four founders of the School of Salernum. The name has usually been considered a mere personification of the Latin element of the school, and, in fact, the whole story of Mazza has been regarded as mythical and unworthy serious attention. Yet M. Baudry de Balzac has succeeded[2] not only in establishing the personality of Magister Salernus, but also the authenticity of two medical treatises from his pen. These are both on the subject of materia medica, and are entitled *Tabulæ* and *Compendium.* Daremberg, who has published the works, furnishes us with two specimens of the author's practice. To prevent the fatal effects of the bite of the tarantula he recommends the suspension of the bed of the patient in a public place, where each passer may give it a push; at the hundredth push —neither more nor less—the patient will be relieved. He also cured his armor-bearer of the effects of a severe fall by burying him in dung up to his mouth.[3] I am unable to fix the period

[1] These works may also be found in the Library of the N. Y. Hospital, Nos. 6645, 6646, and 6833.

[2] *L'École de Salerne, Appendice*, p. lxviii.

[3] *Id., Introduct.*, p. lv., and *Appendice*, p. lxviii.

of Magister Salernus with any certainty, though it is not improbable that he was a contemporary of Gariopontus.[1] Bernard the Provincial, whose name has escaped the notice of almost all medical historians, wrote about A. D. 1155 a commentary on the *Tabulæ* of Salernus, which affords us much interesting information of the therapeutics of the day. Striving, after the manner of Salernus, to simplify the popular materia medica, he abjures the drugs imported from Alexandria: "No more of those dried herbs which lose all their efficacy; nothing is good save the simples freshly collected in the fields. Let the poor cease to lament their misery, which does not permit them to buy either 'theriaca' or the 'antidotum aureum.' These are useless inventions of luxury; a check must be put on the cupidity of apothecaries and druggists; their shameful and injurious frauds must be unveiled; the public must be taught that they adulterate manna with the remains of the cane which has already served to make sugar or molasses; musk, with goat's blood; theriaca, by the introduction of robelia in place of orobus, to such an extent that it is impossible to find any good theriaca in all Salernum."[2]

"Bernard gives a large number of recipes which enable the sick to escape the omnipotence of the apothecaries." Prunes may be rendered more laxative by injecting between the bark and wood of the plum tree (in March, when the sap is rising) a purgative vinegar or some other laxative preparation. The

[1] According to Beaugrand (*Dict. Encyc. des Sciences Méd.*, *s. v.* "Salernus"), Magister Salernus was a contemporary of Musandinus, and succeeded the latter in the presidency of the School of Salernum. It was also from his hands that Ægidius of Corbeil received the doctoral laurel. But as Musandinus and Bernard the Provincial both flourished about the middle of the twelfth century, and the latter wrote a commentary on the *Tabulæ* of Salernus, it is scarcely credible that Salernus himself lived to confer the doctoral laurel on Ægidius, who flourished about the close of the same century. It is probable that the *Tabulæ* of Salernus are referred to in the following passage (*De Comp. Méd.*, lib. i. v. 835–837) of Ægidius:

> "Gummis, seminibus, quibus est diuretica virtus,
> Ordine sub certo, quorum fœcunda Salerni
> Pagina describit similem distincta columnis;"

and the work is noticed also by Haller (*Biblioth. Med. Pract.*, tom. i. § clxii.).

[2] *L'École de Salerne, Introduct.*, p. li. et seq. Robelia and orobus were two different varieties of the lentil.

vine, thus treated with scammony, will yield laxative grapes, or, if various coloring-matters are introduced, fruit of any desired color may be cultivated. The author also recommends wine for the delicate stomachs of archbishops; and as these stomachs do not bear medicine well, he directs, in accordance with the practice of Archbishop Alfanus, that emetics should be prescribed after meals, when their action is less injurious and more agreeable. Young men and women tormented by a love which they cannot or ought not to satisfy, are advised to tie their hands behind their back and to drink water from a vessel in which a red-hot iron has been cooled. For meagreness of flesh our author advises to feed a fowl on old and very fat frogs, cut in pieces and made into a soup with wheat; then eat the fowl, taking care, however, to limit yourself to the parts corresponding to those which you wish to fatten, otherwise the whole body will assume frightful proportions. To prevent abortion nothing is better than a magnet suspended about the neck, or, in default of this, it may be replaced by the spongy bone found in the head of an ass, etc. The work is full of curious information with regard to the customs of the age, and possesses also some therapeutic interest.

In the latter half of the twelfth century lived John of St. Paul, Musandinus, Urso, Maurus, and Castalius. John of St. Paul is known to me only as one of the teachers of Gilbert the Englishman during the sojourn of the latter at Salernum. He is also quoted by Lanfranc, about the close of the thirteenth century.[1] Musandinus was the master of Ægidius of Corbeil (whom we shall have occasion to mention hereafter), and has left us a curious treatise on dietetics entitled *Summula de Præparatione Ciborum et Potuum Infirmorum*. Daremberg furnishes us with the following particulars of this curious work:[2] "In acute fevers Musandinus has all sorts of herbs and vegetables, prepared simply, but with a certain art; all sorts of emulsions and electuaries to allure and support the sick without wearying the stomach. He gives them also chicken-bones to pick, for the sick delight to gnaw bones. If the invalid is feeble and needs nourishment, boil for a considerable time a fat fowl, remove it

[1] Malgaigne, *op. cit.*, *Introduction*, p. xlvi. and tom. iii.; *Préface*, p. vi.

[2] *L'École de Salerne*, *Introduction*, pp. xlviii.–l.

from the pot, pound the flesh and bones in a handsome vessel (for nothing pleases the sick like a handsome vessel), pour the soup over this paste, and reduce the whole to a perfectly homogeneous jelly; then mix in a little finely-powdered bread-crumb. In case of looseness of the bowels the fowl is to be boiled in rose-water, instead of simple water, unless the patient is poor, when the decoction is to be merely flavored with rose-water." "Physicians," says Musandinus, "often find themselves much embarrassed when the patient wishes to eat, and yet requires spare diet. If we give him hearty food and the patient happens to die, the blame will be laid, of course, upon his physician; if we maintain low diet and the patient becomes weak, if Nature remains powerless, and if misfortune results, it is again the physician who will be accused. What must we do? Deceive the patient if we cannot satisfy him. If he wishes honey, and honey is contraindicated, thicken by evaporation some syrup of violets, for example, and offer it to him in a handsome saucer. If he wishes beef, disguise the flesh of a fowl so as to resemble beef. Galen deceived in this way one of his friends, and, moreover, gave him juice of the pomegranate in place of red wine, with the remark that such wine was required to digest such meat. If the patient is constipated, purge him without saying anything about it, in order that, if death ensues, the physician may not be blamed." Beside precepts of doubtful morality there are found in this treatise many good counsels, which even the physicians of the present might adopt with profit: "When the diagnosis is made and the treatment prescribed, the physician withdraws, leaving a thousand little details to the care of the relatives or the nurse. The old physicians, with good reason indeed, did not disdain these minutiæ of their profession."

Ægidius Urso wrote a treatise entitled *De Pulsibus et Urinis*, and Magister Maurus is credited with works *De Urinis et Febribus*, *Liber Phlebotomiæ*, and a commentary on the *Aphorisms* of Hippocrates.[1] Romuald II., the forty-seventh bishop of Salernum (1153–81), is described as a man well skilled in the art of medicine and often consulted by persons of the highest rank. He attended William I. of Naples in his last sickness,

[1] *L'École de Salerne, Introduction* (*Appendice*), p. lxix.

and wrote a treatise on the pulse and urine, but is best known for his *Chronicle of the History of Salernum*, preserved in the great work of Muratori.[1]

De Renzi assigns to the year 1190 a certain physician of Syracuse named Alcadinus, who studied philosophy and medicine at Salernum with such success that he was appointed professor in that school, and soon acquired an extensive reputation. Alcadinus wrote and dedicated to the emperor Henry VI. a poem, *De Balneis Puteolanis*, still extant. Two other poems, celebrating the triumphs of this monarch and the exploits of Frederick II., and composed by Alcadinus, have been lost.

Just at the close of the twelfth century flourished Ægidius of Corbeil (Corboliensis), whose name has been already mentioned. Authorities disagree as to the birthplace of this distinguished physician and poet, but there is no doubt that he studied at Salernum, and possibly also at Montpellier, in which city a school of medicine had been founded A. D. 1180. Ægidius was also physician to Philip Augustus of France, and probably a professor in the University of Paris. Three treatises by this author, all written in hexameter verse, have been preserved to our day. The *Liber de Urinis* appears to have been the earliest of the works of Ægidius, and one of which he did not, in his maturer years, fully approve. Nevertheless, the treatise was held in high esteem by mediæval physicians, and was made the subject of a commentary by Gentilis del Fuligno (1340) and other writers. It affords us a good idea of the science of uroscopy as it existed in that day, though the author evidently had before his eyes the work of the Greek physician Theophilus or Philaretus (A. D. 625) on the same subject. The second treatise, entitled *De Pulsibus*, is full of the minute and ridiculous distinctions which so long encumbered the subject of the arterial pulse, and which have only recently faded from our medical text-books. Ægidius divides the varieties of pulse into no less than ten genera, each of which contains several species. The third and most elaborate work of this author, entitled *De Laudibus et Virtutibus Compositorum Medicaminum*,

[1] *Chronicon Romualdi II.*, in Muratori, tom. vii. p. 206 D. Vid. also Hugo Falcandus, *Hist. Sicul.*, in Muratori, tom. vii. p. 319 B.

consists of no less than 4663 hexameter verses, divided into four books, and is simply a poetic paraphrase of the commentary of Matt. Platearius on the *Antidotarium* of Nicholas Præpositus.[1] The versification is rather superior to most of the poetry of the Middle Ages, and the work, as a whole, is valuable as an index of the medical knowledge of the period. As an example of the author's style I quote the following lines from the chapter on the famous "Confectio Esdræ:"

* * * * *

"Mitigat et lenit sensum viresque doloris,
Rheumate currentes aures lavat atque dolentes.
Confortat dentes, et inuncta juvat parientes
Sub licini specie tentæ sibi nacta figuram
Illita musceolo[2] bombax tingatur in Esdra."

De Comp. Med., lib. iii. v. 111–115.

Haller ascribes[3] to Ægidius treatises *De Re Medica*, *De Venenis*, and *De Prognosticis*, and Choulant[4] adds to the number a fourth, entitled *De Signis Morborum*. All of these exist at present in manuscript only.

A contemporary of Ægidius, and a distinguished physician of Venice, was Johannes Nicolaus Rogeriis, a graduate of Salernum, and author of works entitled *De Sede Animæ*, *Membrorumque Principatu*, and *De Recta Curandi Ratione per Sanguinis Missionem*[5]—the latter simply a commentary on the similar treatise of Galen.

Within the first quarter of the thirteenth century flourished Roger of Parma, one of the most distinguished graduates of Salernum and the earliest pioneer of modern surgery. He certainly studied at Salernum, and was probably also, for a time, professor in the school of that city. Subsequently he seems to have held the position of chancellor to the University of Mont-

[1] The three treatises of Ægidius may be found in the Library of the N. Y. Hospital, No. 7050.

[2] Vid. *Ægidii Corboliensis Carmina Medica*, Ludov. Choulant, Lipsiæ, 1826, *Index Medicamentorum*, p. 205. The musceolum is defined "mistura aromatica cum moscho."

[3] *Biblioth. Med. Pract.*, tom. i. § 162.

[4] *Ægidii Corbol. Carm. Med.*, Prolegomena, p. xxxv.

[5] Mangetus, *Biblioth. Script. Med. Vet. et Recens*, lib. xvii. p. 86.

pellier.[1] The *Surgery* of Roger, familiarly known as the *Rogerina*, enjoyed the greatest reputation in its day, and continued for a long period the surgical text-book of Italy. The author manifests a great fondness for wine, honey, ointments, herbs, and poultices,[2] but yet on occasion does not hesitate to resort to the actual cautery, or even the knife. Hippocrates is the only author of antiquity whom he quotes, and the Arabians are not even mentioned, though he borrows freely from their writings, especially from those of Albucasis. The predilection of Roger for poultices and similar moist dressings in the treatment of wounds, abcesses, and ulcers, became, in the hands of his followers, and especially under Roland, the distinguishing feature of the surgery of Salernum, in opposition to the School of Bologna, where Hugo di Lucca and Theodoric (the great rival of Roland) inculcated the superiority of the dry treatment. We owe, however, to Roger the introduction of the use of sponge in scrofulous affections,[3] and Malgaigne informs us that he was also the first to use the term "seton," and to employ this means of derivation in practice.[4]

Roland of Parma, a pupil of Roger, flourished about the middle of the thirteenth century. He was a professor at Bologna, a surgeon of distinction, and author of a treatise on surgery, for the most part a mere commentary on the work of his master. The *Rogerina* and the *Chirurgia* of Roland furnish the basis of a work entitled *Glossulæ Quatuor Magistrorum Super Chirurgiam Rogerii et Rolandi*, commonly known as *The Four Masters*, manuscripts of which have been long known to exist in the Bodleian Library and other libraries at Oxford and Cambridge. Daremberg discovered another manuscript copy in the Mazarine Library at Paris, and published it for the first time in 1854. The work is, as its title implies, a commentary on the works of Roger and Roland of Parma, and is supposed to have been written at Salernum about A. D. 1270. The reputed authors were Archimathæus, Platearius, Petrocellus, and Afflacius, but Da-

[1] Malgaigne, however, says the Roger of Montpellier was an entirely different person (*Œuvres d' Ambroise Paré, Introduction*, p. xxxiii.).

[2] Sprengel, *op. cit.*, tom. ii. p. 416.

[3] Sprengel, *loc. cit.*

[4] *Œuvres d' Ambroise Paré*, tom. ii. p. 82, note.

remberg proves [1] pretty conclusively that the treatise was written by a single hand, and that the author was not improbably a Frenchman. However this may be, there is no doubt that the work is a reliable exposition of the surgery of Salernum in its day, and in this view its interest is not impaired by the uncertainty of its authorship. It is quoted frequently by Gui de Chauliac (the restorer of French surgery in the fourteenth century), and occasionally by several later writers. The commentary of *The Four Masters* is divided into four books, of which the first discusses wounds and other injuries of the body in order of location from head to foot; the second considers a number of surgical diseases, as abscess, carbuncle, scrofula, etc.; the third treats of mania, melancholia, epilepsy, and diseases of the eyes, ears, teeth, hernia, stone in the bladder, etc.; the fourth is devoted to fractures and dislocations. The work displays no little surgical ability, and will be considered more fully hereafter.

Other distinguished physicians during the thirteenth century were Otho Cremonensis, author of a treatise in hexameter verse entitled *De Electu Medicamentorum Simplicium;* P. Maranchus, who wrote on materia medica; and the famous John of Procida, an active agent in, if not the real author of, the massacre known as "the Sicilian Vespers" (A. D. 1282). Giannone informs us [2] that John, a noble of Salernum and lord of Procida, was highly esteemed by the emperor Frederick II., both for his many virtues and his skill in medicine. In the dispute concerning the crown of the Two Sicilies, John of Procida, embracing the cause of the unfortunate Manfred,[3] was banished by Charles of Anjou, and his property was confiscated. Flying to the court of Peter III. of Aragon, he was by that prince created baron of Valentia,

[1] *Gloss. Quatuor Magist.*, etc., Paris, 1854, Introduction, pp. 30–33, in Library of N. Y. Hosp., No. 6896. Cf. *L'École de Salerne, Introduction* (*Appendice*), p. lxix.

[2] *Op. cit.*, book xx. chap. v. Vid. Gibbon's *Decline and Fall of the Roman Empire*, chap. lxii.

[3] Manfred himself was a prince of considerable learning, and is said to have translated from the Hebrew (?) into Latin a treatise, *De Pomo*, ascribed to Aristotle. Hermann the German and Stephen of Messina (famous translators of Arabic) also dedicated to Manfred several of their translations. Moreover, we read that Jemal-Eddin, an Arabian savant sent on an embassy to Naples by Bibars, sultan of Egypt, in 1262, wrote and dedicated to Manfred a treatise on logic (Leclerc, *Hist. de la Méd. Arabe*, tom. ii. p. 463).

and began to use his influence in persuading Peter to assert his claim to the throne of Sicily. In various disguises the physician visited not only the pope, but even the court of Michael Palæologus, emperor of the East, and by crafty appeals to the passions and interests of these various rulers succeeded in organizing an alliance which first betrayed its existence in the "Sicilian Vespers," and finally resulted in the overthrow of the French in Sicily and the transfer of that island to the crown of Spain. The interest of John of Procida in medicine was manifested by his composition of a work on practice entitled *Utilissima Practica Medica*, unfortunately no longer extant. De Renzi ascribes also to his pen a curious treatise discovered in manuscript at Paris, and bearing the title *Placita Philosophorum*.[1]

About the same period we read[2] of a certain learned Jew of Agrigentum, named variously Farraguth, Farragius, or Farragus, who was educated at Salernum, and flourished under the reign of Charles of Anjou (1266–85). Charles, who was himself a warm patron of learning, had procured from the king of Tunis,[3] by means of a special embassy, an Arabic copy of the *Continens* of Rhazes, a work at this period unknown in Europe. The translation of this work into Latin was entrusted by King Charles to the Jew Farraguth, and the version, when completed, was dedicated by the translator to his royal patron. The same Farraguth also translated into Latin a treatise of the Arabian Ben Jesla, entitled *Tacouini*, a series of synoptical tables of the pathology and treatment of diseases, written toward the close of the eleventh century.[4]

Early in the fourteenth century lived Matthew Sylvaticus, a native of Mantua, who practised principally at Milan, but spent some time also at Salernum. He wrote (A. D. 1317) a voluminous treatise entitled *Pandectæ Medicinæ*, dedicated to Rob-

[1] *L'École de Salerne, Introduction* (*Appendice*), p. lxviii. Daremberg (*Gloss. Quatuor Magist.*, Introduction, p. vii.) calls the work "Liber Philosophorum Moralium," and says John of Procida translated it into Latin from the Greek.

[2] Malgaigne, *Œuvres d'Ambroise Paré, Introduction*, p. lix.

[3] Probably Abou Abdallah Mohammed (Mostanser Billah), fourth prince of the dynasty of Beny Hafis. He reigned at Tunis A. D. 1249–77.

[4] Ben Jesla died at Bagdad A. D. 1100. He was an apostate Christian (Leclerc, *op. cit.*, tom. i. p. 495).

ert I., king of Naples. This work[1] is a kind of universal materia medica, where the various drugs are enumerated in alphabetic order under corrupted Arabic and Latin names, with references to Dioscorides, Serapion, Galen, Haly Abbas, Avicenna, Mesué, and other medical writers. It is, in fact, an attempt to reconcile the confused nomenclature of the ancient authors on the subject of materia medica. But, as Sprengel informs us, Sylvaticus himself enjoyed a very slight acquaintance only with either Greek or Arabic, and his efforts to explain these various authors met with such success as might have been anticipated. The *Pandectæ* only added to the lamentable confusion, and require a special lexicon for their own elucidation.

Other writers of the School of Salernum during the fourteenth century were Benvenuti Graphæus,[2] who in 1340 published a treatise on diseases of the eye, quoted by Gui de Chauliac; and Cæsar Cappola, who about the middle of the century composed some *Consilia* or *Consultationes*, published by De Renzi in his *Collectio Salernitana*.

About the middle of the fifteenth century flourished Saladino d'Ascoli, an alumnus and professor of Salernum,[3] and a famous writer on materia medica and pharmacy. Saladino was a native of Puglia, and physician to Giovanni Antonio di Balzo Ursin, grand constable of Naples under Alphonso V. of Aragon (1435–58). His work, entitled *Compendium Aromatariorum*, is divided into seven parts, of which the first is devoted to a general consideration of the duties and responsibilities of apothecaries; the second is a formal catalogue of the compound medicines mentioned in the *Antidotarium* of Nicholas Præpositus; the third discusses the subject of weights and the doses of medicines; the fourth describes the mode of preparing confections, electuaries, syrups, and other officinal preparations; the fifth sets forth the proper seasons and methods for the collection of herbs, flowers, seeds, roots, etc.; the sixth discusses the preservation of simple and compound medicines; and the last gives a complete catalogue of the medicines which should be kept by every apothecary. The work is the most elaborate of its kind which has

[1] Library of the N. Y. Hospital, No. 6608.

[2] Mazza, *op. cit.*, p. 59 B; Malgaigne, *op. cit.*, *Introduction*, p. lxviii.

[3] De Renzi, *Storia della Medicina in Italia*, tom. ii. p. 322.

been preserved to our day, and is valuable as an exposition of the pharmaceutical knowledge of the period.[1]

The only other writers of the School of Salernum of whom I shall make any special mention are Paulus Grisignani, who published in 1544 a commentary on the *Aphorisms* of Hippocrates and a treatise *De Pulsibus et Urinis;* and Vincentius Petronus, a native of Salernum, but professor of medicine at Pisa about A. D. 1651, who wrote an account of what he calls a "literary duel" between the physicians of Salernum and Naples, with a treatise bearing the formidable title *De Vermiculis Quibusdam Cucurbitini Seminis Referentibus Speciem in Cervorum et Aprorum Hepate Inventis.*[2]

I should fail, however, in my duty toward the modern aspirations of the gentler sex did I neglect to record the names and deeds of their worthy predecessors in this earliest school of European medicine. The fame of Trotula, or Eros, has descended even to these modern days, and her name has been already mentioned in the preceding pages. She is supposed to have flourished about the middle of the eleventh century, and a treatise entitled *De Mulierum Passionibus* has been ascribed to her pen. The authenticity of this famous work has long been, however, a subject of dispute among medical historians and antiquaries. A copy preserved in the *Libri Gynæciorum* of Spachius, printed at Strasbourg in 1597, is found in the Library of the N. Y. Hospital. The treatise is here entitled *Erotis Medici, Liberti Juliæ, quem Aliqui Trotulam Inepte Nominant, Muliebrium Liber*, and consists of sixty-three chapters. Of these the sixty-first, and longest of the whole work, bears the title "De Ornatu Faciei et Partium Ejus," while the sixty-second is devoted to the composition and virtues of the "Aqua Mirabilis," and the last to the description of a famous powder for the preservation of the sight. In addition to chapters on menstruation and its disorders, pregnancy, diseases and displacements of the uterus, I notice also others on stone, dysentery, pediculi, scabies, foul breath, falling of the palate, hæmorrhoids, toothache, fistula, etc. The author, in his introduction,

[1] The *Compendium* may be found in the Library of the N. Y. Hospital, Nos. 6645 and 6646.

[2] Mazza, *op. cit.*

mentioning the occasion of writing the work, in the present copy speaks of himself as "cujusdam matronæ instigatione compulsus"—proof enough of his sex, were it not that other editions present the feminine participle "compulsa." Two MSS. consulted by Malgaigne (one of the thirteenth, the other of the fourteenth, century) fail to determine the true reading, since, though the same idea is expressed as in the above quotation, the turn of the expression is such as to avoid entirely the use of the participle. Throughout the entire work Trotula is invariably mentioned in the third person, and there is nothing to indicate either the name or sex of the author. Again, one of the ingredients of the "Aqua Mirabilis" is brandy (*aqua vitæ de vino*); chapter 63 speaks of a certain patient of "Magister Geraldus" who had used spectacles (*specilla vitrea*) for twelve years; chapter 61 mentions a mode of treatment which the author had seen employed by the Saracen women (*mulieres Sarracenæ*); and among the authorities quoted are a certain Theodoricus (cap. xi.) and Cophon (cap. xvii.). Now, as brandy was not in medical use in Europe until the close of the thirteenth century,[1] and spectacles were invented about the same period,[2] it is evident that the composition of these chapters at least must be referred to a period not earlier than the beginning of the fourteenth century. But, on the other hand, no Saracen women could have been found in Italy later, at farthest, than the end of the twelfth century. Theodoricus, if by this name is intended the great Bolognese surgeon, wrote in 1265, and Cophon, according to Sprengel, flourished in the first quarter of the twelfth century. Here, then, is a dilemma which seems to render the period of composition of this treatise as uncertain as the name and sex of its author.

Malgaigne, who has carefully investigated the whole subject, explains[3] these apparent inconsistencies as follows: The first

[1] According to Sprengel, brandy was first used in European medicine by Thaddeus of Florence (ob. 1295): Arnold of Villa Nova (fl. 1300) is the first medical writer to mention it distinctly by name.

[2] Spectacles are said by Francisco Redi to have been invented by Alex. de Spina, a monk of Pisa, about 1299. The invention has also been ascribed to Salvinus Amatus, a nobleman of Florence who died in 1317. Doubtless, the first hints were obtained from Alhazen and Bacon.

[3] *Œuvres d'Ambroise Paré, Introduction*, pp. 23, 24.

printed edition of this treatise, published at Venice in 1544, contained only forty-two chapters, and made no mention of brandy nor of Magister Gerald and his spectacles. At this period it was unhesitatingly ascribed to the pen of Trotula. Subsequently, some editor or critic of unusual profundity discovered that the name "Trotula" was a misprint for "Eros Juliæ," and thereafter until the seventeenth century the work was ascribed to Eros, a physician and freedman of Julia, the daughter of Augustus. But the absurdity of a Roman freedman of the Augustan age quoting Galen, Paul of Ægina, and Cophon was too glaring to escape the notice of any reader of ordinary intelligence; and Bartholini concluded that the author must have been a Salernian physician, probably a contemporary of Gariopontus. This cleared away the difficulty of the quotations and of the notice of the Saracen ladies, but as meanwhile Magister Geraldus, his spectacles, and the brandy had crept surreptitiously into the text, the enigma appeared as insoluble as before. Malgaigne found that his two manuscripts differed somewhat from each other, but they differed still more markedly from the printed editions. In neither was there any mention of brandy or spectacles. In neither was the author of the treatise named. "Trotula" was the title of the work—*Summa quæ Dicitur Trotula.* Or rather there were two books, *Trotula Major* and *Trotula Minor*, the latter of which was a treatise on hygiene, with some recipes for the toilet, while *Trotula Major* discussed menstruation, conception, gestation, parturition, the diseases of women and children, and even diseases of the anus and genito-urinary apparatus. In neither of the manuscripts did he find anything to indicate either the name or sex of the author. By "Theodoricus" was probably intended Theodorus Priscianus (a favorite authority among the mediæval writers on medicine), and the Cophon of chapter xvii. is doubtless the senior of that name, a contemporary of Gariopontus.[1]

On the whole, then, we may conclude that the treatise bearing the name of Trotula is a work of the eleventh century, disfigured, however, by numerous additions of a later date; that the name and sex of the real author are unknown; that the only

[1] See Note 4, p. 17.

reason for ascribing the treatise to the pen of Trotula is the fact that such a female probably existed and enjoyed considerable reputation at this period.[1] The work itself is of no importance intrinsically, everything of value found in it being drawn from Hippocrates, Galen, or other ancient authors. A short extract will afford to the curious reader a better idea of the character of the treatise than pages of description:

"DE FORMATIONE SEMINIS CONCEPTI" (cap. xii.).

"Primo mense fit purgatio sanguinis; secundo fit expressio sanguinis et corporis; tertio ungulas et capillos producit; quarto motum, et ideo nauseant mulieres; quinto accipit fœtus similitudinem patris vel matris; sexto nervorum constrictionem; septimo ossa et nervos confirmat; octavo movet natura et infans rerum beneficio repletur; nono a tenebris procedit in lucem."

"DE SIGNIS IMPREGNATIONIS" (cap. xiv.).

"Ad cognoscendum utrum mulier gestet masculum vel fœminam, accipe aquam de fonte et mulier extrahat duas vel tres guttas sanguinis vel lactis de dextro latere et infundantur in aquam; et si fundum petant, masculum gerit; si supernatant, fœminam. Unde dixit Hippocrates[2] mulier quæ masculum gerit bene colorata est, et dextram mamillam habet grossiorem. Si pallida est, gerit fœminam, et sinistram mamillam habet grossiorem."

I have already devoted to the consideration of this treatise far more space than its intrinsic merit deserves. But as the reputed work of the earliest female physician of mediæval Europe it may fairly claim some slight excess of courtesy. I will only add that Sprengel calls the work a fraud of comparatively recent date,[3] while Daremberg and De Renzi insist not only upon the personality of Trotula, but also upon the substantial authenticity of the treatise ascribed to her pen. Daremberg declares that she lived at Salernum, was possibly the wife of the senior Pla-

[1] See p. 13.

[2] "Mulier prægnans, si marem gestat, coloratior est; si fœminam, minus colorata" (*Aphorismi*, p. 744, tom. iii., Kühn's edition).

[3] *Op. cit.*, tom. ii. p. 361.

tearius, and practised not only in obstetrics and the diseases of women, but also in all other branches of the healing art.[1]

A few years later we read in Ordericus Vitalis[2] of a certain Sichelguada, a graduate of Salernum, and the wife of Robert Guiscard, who endeavored to destroy by poison her step-son Bohemond, in order to secure the succession to her own son Roger. The infamous plot was aided by several of the Salernian physicians, and its success barely thwarted by the stern and prompt decision of Guiscard, who swore on the Holy Evangelists that he would slay his wife with his own sword should the malady of his elder son prove fatal.[3] The life of Bohemond was saved, but the unfortunate prince bore to his grave the evidences of the deadly drug in a permanent and death-like pallor, which no skill sufficed to remove.

Mazza mentions also among the celebrated female physicians of Salernum a certain Abella, who, as Baas says,[4] without prejudice to the lovely modesty peculiar to her sex, wrote in hexameter verse a treatise entitled *De Natura Seminis Hominis*, and a second, *De Atrabile.* Her exact age is unknown, as well as that of Mecuriadis, authoress of treatises *De Crisibus*, *De Febre Pestilenti*, *De Curatione Vulnerum*, and *De Unguentis.* Rebecca Guarna, of a noble family whose name is often conspicuous in the annals of Salernum, is also credited with treatises, *De Febribus*, *De Urinis*, and *De Embryone.* Still later we read of a certain Costanza Calenda (daughter of Salvator Calenda, physician to Queen Joan II. of Naples, and president of the colleges of

[1] *L'École de Salerne, Introduction*, pp. xxxiii.–xxxv.

[2] *Hist. Ecclesiastic.*, lib. vii. cap. vi.

[3] According to Ordericus Vitalis, Guiscard himself perished by poison secretly administered by his wife in order to escape the execution of this threat. The quaint language of the historian is worth quotation: "Deinde, anno ab incarnatione Domini 1085, Robertus Wiscardus, Apuliæ dux insignis, nostrisque temporibus pene incomparabilis, facta confessione, a peccatis mundatus et salutaris eucharistiæ perceptione munitus, non militari robore prostratus, sed livore femineo corruptus, quo primus Adam est de Paradisi sede projectus, non armis sed veneno læsus, adveniente mortis hora, mundo sublatus est."

[4] *Op. cit.*, p. 213: "Abella liess sich vorurtheilslos in schöner Weiblichkeit als ein noch zu erreichendes Ideal für unsre heutigen 'Doctorinnen' zu Versen 'über den männlichen Samen' begeistern," etc. I must confess my courage unequal to the literal translation of so exasperating a passage.

both Naples and Salernum),[1] a lady renowned for her beauty and intelligence, who graduated with great eclat from the school of medicine at Salernum. I am unable to mention any special contributions of this fair lady to science, but the historian informs us that in 1423, soon after her graduation, she contracted a matrimonial alliance with Baldassare de Sanctomango, a nobleman of Salernum. The silence of history on her subsequent career suggests the pleasing reflection that possibly she may have proved as excellent a wife as she had been brilliant in the *rôle* of a student of medicine.

About the middle of the fifteenth century a certain Marguerite of Sicily or Naples, also a graduate of Salernum, acquired an extensive medical reputation, and was licensed to practise by Ladislaus, king of Poland.[2] Finally, Fortunatus Fidelis, a Sicilian physician of the first quarter of the seventeenth century (1550–1630), mentions among the "clara medicarum mulierum nomina" a certain Sentia (called also, by Mazza, Sentia Guarna), who practised with great success at Salernum.[3] Fortunatus describes her as "nostra memoria;" hence she should probably be assigned to the latter half of the sixteenth century.

Daremberg informs us[4] that there were numerous female physicians at Salernum, many of whom were much sought after by the sick, and also highly esteemed by the professors of the school, who quote them as respectable authorities. He also cites, on the authority of Bernard the Provincial, some peculiarities of their practice. Thus, they employed ointments in paralysis, fumigations with the vapor of antimony in cough, lotions of aloes and rose-water in swellings of the face, especially in those of a flatulent (?) origin. Certain practices of the females of Salernum, whether physicians or not, we may mention on the same authority. They themselves ate, and made their husbands eat, asses' dung fried in a frying-pan, to combat sterility. They also ate the stuffed heart of a sow in order to forget deceased friends. An ointment adapted to the cure of melancholy was prepared

[1] Giannone, *op. cit.*, book xxv. chap. ix.

[2] Beaugrand, *Dict. Encyclopéd. des Sciences Médicales*, 2d series, tom. v. p. 599.

[3] Isensee, *op. cit.*, Theil ii. p. 837.

[4] *L'École de Salerne, Introduction*, p. xxxv.

with the plant betony, collected about the third hour of Ascension Day while repeating a "Pater Noster." The delightful union of scientific knowledge with the facetious playfulness so charming in their sex, exhibited in offering to their unsuspecting beaux bouquets of roses powdered with euphorbium, and enjoying the irrepressible sternutations of their innocent victims, cannot fail to increase our respect and admiration for these learned ladies of mediæval times.

Of the early organization and teaching of the School of Salernum we have very little information. We have noticed the incredibility of the statement that Charlemagne founded a college at Salernum A. D. 802. Indeed, there is no reliable evidence that any organization deserving the name of a college existed at Salernum prior to the twelfth century. But a distinct school of medicine was certainly in operation here in the eleventh century, and possibly even earlier. John of Milan writes in the name of "Schola tota Salerni," and the title "Præpositus," applied to Nicholas A. D. 1110, implies an organization of which he was the presiding officer. Giannone[1] says the School of Salernum was at first only a plain school of medicine and philosophy, unauthorized by the laws of any prince, and that King Roger III. was the first to provide it with legal regulations, and thus publicly recognize its position. A decree of this monarch, published A. D. 1140, has been preserved to us,[2] and provides that no person should practise medicine in his kingdom until he had first presented himself for examination to the royal officials, on pain of imprisonment and confiscation of goods. No mention of Salernum is made in this decree, but it is not improbable that the royal judges therein mentioned were selected from the professors of that city.

The abbot Joachim, an Italian ascetic writer[3] who flourished A. D. 1190, calls the School of Salernum "Hippocraticum Col-

[1] *Op. cit.*, book x. chap. xi. § iii.

[2] *Hist. Diplomat. Friderici II.*, par Huillard-Bréholles, Paris, 1854, tom. iv. pars i., "Constitutiones Regni Siciliæ," titulus lxiv. "De Probabili Experientia Medicorum," p. 149 (Appendix to this article, Note C).

[3] Haller, *Bibliotheca Med. Pract.*, tom. i. § 158.

legium," a title which seems to conflict with the statement of Giannone that it was only under the emperor Frederick II. that the school was converted into an academy or college.[1] Whatever may have been the precise organization of the school prior to the time of Frederick, it is certain that this enlightened prince, who promoted in so many ways the cause of intellectual advancement,[2] perfected also the development of the ancient School of Salernum. It is perhaps doubtful, however, whether the school ever attained the full dignity of a university, in our modern sense of that term. Mazza declares[3] that while civil and canon law were taught at Salernum, no degrees were conferred except in medicine. Sprengel informs us[4] that the emperor Conrad IV. in 1252 endeavored to convert the School of Salernum into a great university, in order to punish a revolt of his Neapolitan subjects. The emperor's design of degrading the University of Naples by elevating her formidable rival at Salernum was, however, frustrated by his untimely death in 1254, and Salernum remained a simple school of medicine, which by the middle of the fourteenth century had already fallen from its ancient splendor.

On the other hand, Giannone says[5] that, while physic and philosophy were at first the principal branches of study at Salernum, afterward the other sciences were also cultivated; and Daremberg informs us[6] that the emperor Frederick II. united the different schools of that city into a single university, for which he published regulations of the greatest importance. Possibly, the different opinions of these writers may be reconciled by recalling the fact that the term "university" (*universitas*) in

[1] *Op. cit.*, book xi. chap. v.

[2] The Universities of Naples and Messina were founded by Frederick II., and by his direction the writings of the ancient Greeks were translated into Latin and came into common use. In all these works the emperor was ably seconded by his chancellor, Petrus de Vineis (vid. Sprengel, *op. cit.*, tom. ii. p. 391). The famous Michael Scot sojourned for a time at the court of Frederick, and dedicated to this prince certain of his translations from the Arabic.

[3] *Urbis Salernitanæ Hist. et Antiq.*, p. 64 B.

[4] *Op. cit.*, tom. ii. p. 366. Vid. also Marténe, *Collectio Ampliss.*, tom. ii. p. 1208, "Epist. Variæ Frid. II., Imperator." Epist. lxxxviii.

[5] *Op. cit.*, book x. § iii.

[6] *L'École de Salerne, Introduction*, p. lxii.

its original signification implied little more than our modern word "corporation."[1] The emperor Frederick II. may thus have incorporated the different schools of Salernum into one single corporation, and may have provided for this corporation certain laws and regulations, without our necessarily inferring that by such action he converted the school of medicine into a modern university, at which degrees in all branches of science may be conferred. At all events, several decrees of this prince regulating the curriculum of Salernum, and defining with precision the duties and privileges of practitioners of medicine and surgery in his kingdom, have been preserved to us, and furnish most valuable information of the medical customs of the age. By a decree published A. D. 1224 he ordered that no person should practise medicine within the kingdom of the Two Sicilies until he had been examined by the faculty at Salernum, and had obtained a license from either the emperor himself or, in his absence, from the viceroy.[2] The faculty of Salernum at this period consisted of ten professors, of whom the senior in office presided.[3] It is probable that the salaries of the professors depended upon the number of their pupils. At least, Malgaigne informs us[4] that this was the usual custom of the mediæval schools, and he asserts that John of Parma, a professor at Bologna in 1308, was the first teacher to receive a salary from the state. At Montpellier the professors depended upon the fees of their respective students until the fifteenth century. Yet Sprengel quotes[5] Tiraboschi to the effect that Frederick II. offered fifteen hundred francs to Pierre d'Invernois to induce him to teach the sciences at Naples, and Giannone,[6] repeating the same statement, adds that Charles of Anjou in 1266 gave to Filippo di Castro-Cœli a salary of twelve ounces of gold as professor of physic in the

[1] Consult *Encyclopædia Britannica*, art. "Universities," for a complete and interesting account of the origin of our modern university system.

[2] Huillard-Bréholles, *op. cit.*, tom. iv. pars i. titulus lxv. p. 150. At a later period, however, the School of Salernum was empowered to confer by her degree a license to practise, without reference to the civil authorities (Giannone, *op. cit.*, book xvi. chap. iii.; and Mazza, *op. cit.*, p. 70 A).

[3] Mazza, *op. cit.*, p. 68 E.

[4] *Op. cit.*, *Introduction*, p. xxix.

[5] *Op. cit.*, tom. ii. p. 391.

[6] *Op. cit.*, book xvi. chap. iii., and book xx. § ii. chap. i.

same city. By a subsequent law[1] of Frederick II. it was provided that no person should undertake the study of medicine until he had devoted at least three years to a preliminary study of logic. On the completion of this course he might turn his attention to medicine, in the study of which he must pass five consecutive years. The authentic works of Hippocrates and Galen were prescribed as the text-books during this period. The candidate for graduation must present satisfactory proofs of his majority, of the legitimacy of his birth, and of the proper duration of his term of preliminary study. He was then examined publicly by the faculty in the *Articella*[2] of Galen, the *Aphorisms* of Hippocrates, or the first book of the *Canon* of Avicenna. On the completion of a satisfactory examination an oath was administered enjoining conformity to all regulations hitherto observed in medicine (*servare formam curiæ hactenus observatam*), the gratuitous treatment of the poor, and the exposure of all apothecaries detected in the adulteration of drugs. A book was then placed in the hand of the candidate, a ring upon his finger, a crown of laurel upon his head, and he was dismissed with a kiss. The ordinary degree thus conferred was entitled "magister." If, however, the graduate chose to pass an examination also upon physics and the analytic books of Aristotle, he received the title "magister artium et physices."[3] Our modern title "doctor," though employed at this period, indicated almost invariably a public teacher or professor.[4] Malgaigne declares[5] that the College of Salernum began to confer degrees in 1237, but we read of "magister Salernus," "magister Maurus," and other "magistri" long before this date. The School of Montpellier, founded A. D. 1180, conferred degrees in 1220, and we learn from Giannone[6] that Peter Poitiers, chancellor of the University of Paris, received the degree of "magister" (our

[1] Huillard-Bréholles, *op. cit.*, tom. iv. pars i. pp. 235, 236, titulus xlvi.

[2] The *Articella* (called also *Microtegni*) was the treatise of Galen entitled *Ars Parva*. It was so called from its containing a complete synopsis of the system of Galen.

[3] Sprengel, *op. cit.*, tom. ii. p. 362.

[4] Roger of Parma is said by Malgaigne to have been the first author who applied the term "doctor" to physicians.

[5] *Op. cit.*, *Introduction*, p. xxix.

[6] *Op. cit.*, book xxv. chap. ix.

modern doctorate) as early even as the time of Pope Innocent III., A. D. 1198. I must therefore conclude that the date mentioned by Malgaigne refers to the period when the School of Salernum was authorized to confer a license to practise without reference to the civil authorities. Even after graduation the new magister of Salernum was compelled to practise one year under the direction of an old and experienced physician before launching forth into absolute independence. As a partial compensation, however, for this restriction, the advanced student, even before receiving his degree, was permitted to expound publicly to his juniors the writings of Hippocrates and Galen. This privilege, so liable to abuse, was strongly censured by Ægidius of Corbeil,[1] and the indignant poet professes to see in the teachings of these "impubes pueros" the germ of that decline which was soon to manifest itself in the glory of his Alma Mater. The jealous care of King Frederick was not, however, manifested solely in the regulation of the preliminary study of the physicians of his kingdom. Even the number of visits to the sick and the tariff of fees were prescribed by law. Thus, the physician was compelled to visit his patients twice daily, and even once at night if called. For this attendance he was permitted to charge a *per diem* fee of at most half a tarenus (14 cents) for patients residing within the city. For calls without the city the utmost legal fee *per diem* was three tareni (85 cents) if the physician's travelling expenses were paid, and four tareni ($1.13) if he paid his own expenses.[2] All druggists' commissions and personal interest in drug-stores were absolutely prohibited. Practitioners of surgery were compelled to devote at least one year to the study of human anatomy, and to procure from the faculty of Salernum suitable evidence of this preliminary study, and of their proficiency in anatomical knowledge, before applying for a license to practise.[3] Even the obligations, duties, and legal profits of apothecaries were very strictly defined. They also were compelled to undergo an examination at Salernum before applying for a license, and were sworn to prepare their medicines strictly and invariably in accordance with the phar-

[1] *De Comp. Med.*, iii. v. 565–577.

[2] Huillard-Bréholles, *op. cit.*, tom. iv. pars i. titulus xlvi. p. 236.

[3] *Id.*, *loc. cit.*

macopœia of that school. It was in certain cities only that they were permitted to locate themselves, and in these they were placed under the surveillance of two respectable citizens, whose duty it was to see that all the legal regulations with reference to their trade were strictly obeyed. In Salernum itself they were placed under the control of the medical faculty. Violations of the law were punished by confiscation of goods, and connivance in fraud on the part of the authorized inspectors was a capital offence.[1]

According to Daremberg[2] hospitals and asylums of various kinds abounded at Salernum, especially under the princes of the House of Anjou (1266–1435). For the most part, these were under the direction of the "Knights of Jerusalem," the "Celestines," the "Brothers of the Cross," and other religious orders. Medical police and public hygiene, especially in all that concerns contagious diseases, the sale of poisons, love-philters, and other charms, were carefully regulated by stringent laws.

The early teaching and practice of Salernum were a curious mixture of Methodism, Dogmatism, and superstition, which can be understood only by a consideration of the circumstances of the period during which the school took its origin. At this time the practice of medicine was confided chiefly to the hands of monks and other higher ecclesiastics—a class by their very education prone to superstition. A belief in the efficacy of charms and the relics of saints and martyrs, or in the active intervention of the saints themselves, in the cure of disease, was encouraged, if for no other, at least for selfish reasons. Hence arose many of those complex, absurd, and superstitious formulæ of which several have been noticed in the preceding pages. The prevalence of the doctrines of medical Methodism was due to the character of the medical writings most accessible to the students of the day. For the most part, these were the works of the so-called Neo-Latin writers, especially Cælius Aurelianus (A. D. 430?),[3] Marcellus Empiricus (A. D. 385),[4] Sextus Placitus (A. D.

[1] Huillard-Bréholles, *op. cit.*, tom. iv. pars i. titulus xlvi. p. 151.

[2] *L'École de Salerne, Introduction*, p. lxi.

[3] *De Morbis Acutis et Chronicis.*

[4] *De Medicamentis Empiricis, Physicis ac Rationalibus Liber.*

370),[1] and Lucius Apuleius (?).[2] Theodorus Priscianus[3] (A. D. 380) appears to have been also a favorite authority. It is a curious fact that Celsus, the most elegant of the Latin writers, was never popular among the mediæval monks. His work is mentioned by Gerbert d'Auvergne (afterward Pope Sylvester II.) toward the close of the tenth century, after which period it seems to have been entirely lost until rediscovered in manuscript by Thomas de Sarzane, A. D. 1443, in the church of St. Ambrose at Milan.[4] By the sixth century after Christ the Greek language had almost disappeared from Italy, and Greek literature had become a sealed book to the vast majority of even educated persons. Thus, the purer sources of medical literature, especially the writings of Hippocrates and Galen, were either entirely closed to the student or corrupted by the medium of scanty and barbarous translations. Cassiodorus, the minister of the Gothic king Theodoric (A. D. 520), commends to the monks of his age the writings of Dioscorides (a translation), the Latin translations of Galen's *Methodus Medendi ad Glauconem*, and a work of Hippocrates (probably spurious), which he calls *De Herbis et Curis*.[5] With these exceptions there seems no evidence of the existence in Italy of any Latin translations of the writings of Hippocrates and Galen prior to the time of Constantine the African,[6] toward

[1] *Liber de Medicamentis ex Animalibus.*

[2] *Herbarium, seu de Medicaminibus Herbarum*, a work probably not earlier than the ninth century, and consisting principally of extracts from Pliny and Dioscorides, with a plentiful mixture of ridiculous and superstitious formulæ.

[3] *Rerum Medicarum Libri Quatuor*, of which the first book treats of external diseases, the second of internal, the third of diseases of women, and the fourth of physiology, etc.

[4] Malgaigne, *Œuvres d'Ambroise Paré, Introduct.*, pp. xix., lx., xciii., cix. Haeser, however, says that Celsus is mentioned by Simon de Cordo (Januensis, about A. D. 1300) among the authorities employed by that author in the compilation of his *Clavis Sanationis* (*Lehrbuch der Geschichte der Medicin*, Jena, 1845, p. 210). I am unable either to confirm or deny the statement, in the absence of the work referred to.

[5] Cassiodorus, *De Institut. Divin. Literarum*, cap. xxxi.

[6] The translations of Constantine (1075) and Gerard of Cremona (1170) were made chiefly from the Arabic. Under Frederick II. several of the ancient Greek medical writers were translated directly into Latin, and in the early part of the fourteenth century a Greek manuscript of Galen was sent from Constantinople to King Robert I. of Naples, and by his direction it was translated into Latin by Nicolo di Reggio. The first translation of the complete

the close of the eleventh century. It is easy, therefore, to explain the prevalence of Methodism in the early writings of the School of Salernum—a school which, as we shall see, at a later period prided itself chiefly upon its unquestioned devotion to "the Father of Medicine." The curious mixture of the doctrines of Galen and Themison is described by Daremberg as follows: "If we may judge by the *Practica* of Petrocellus (about the year 1035), as well as by the *Passionarius* of Gariopontus (these are the two most ancient works which have descended to us), the character of the medicine of Salernum prior to the year 1050 was a union of Methodism in doctrines and Galenism in formulæ; yet in the doctrines we recognize rather Methodism in the details than in certain general propositions. We might say they (*i. e.* the early physicians of Salernum) were Methodists without knowing it. We even surprise them in believing themselves, with the best faith in the world, defenders of the purest Galenism, when they are in fact only the echoes of the doctrine they reprobate."[1]

But the translations of Constantine from the Arabic introduced a new element into the medical teaching of Salernum. Among these translations was the commentary of Galen on the *Aphorisms* of Hippocrates; and it must always be remembered that Arabian medicine itself was but a reflection of Galenism, a vigorous though distorted offshoot from the decaying stock of the ancient and purer doctrines. The Dogmatism thus engrafted by Constantine upon the medical teaching of Salernum throve vigorously in the congenial air, and the translations of Gerard of Cremona[2] about a century later gave a new and stronger impulse to the growth of Hippocratic medicine. Henceforth, the glory of Salernum was in the strictness of her orthodoxy, and the proud motto of her seal, "Civitas Hippocratica," bears ample witness to her unswerving devotion to "the Father of Medicine." Anatomy in the time of Cophon was studied very imperfectly by the dissection of swine. Ackerman, on the authority of Haller, de-

works of Hippocrates was by Calvus, A. D. 1525 (Giannone, *op. cit.*, book xxii. chap. vii., and Malgaigne, *op. cit.*, *Introduction*, p. xlviii.).

[1] *L'École de Salerne*, *Introduction*, p. xxxi.

[2] A complete catalogue of these may be found in Leclerc's *Hist. de la Méd. Arabe*, tom. ii. p. 401.

clares, however, that Frederick II. decreed the dissection of a human body at Salernum at least once in five years, in the presence of the assembled physicians and surgeons of his kingdom.[1] The text of the emperor's decree relative to the instruction of surgeons[2] certainly suggests the probability that human dissection may have been practised at Salernum during the thirteenth century. But if so, Salernum anticipated Bologna by at least half a century and the School of Montpellier by more than twice that period.[3] In physiology, Salernum accepted the conclusions of Galen with unquestioning obedience. Doubtless, also, the therapeutics of the school, in the period of its prime, were founded upon the teachings of the same authority. But we have had ample opportunity in the preceding pages to observe how the judicious therapeutics of the early Greek were corrupted by the superstition of an ignorant and credulous age.

The surgery of the School of Salernum is comprised almost entirely in the writings of Roger, Roland, and "the Four Masters." It is true that Gariopontus mentions certain surgical diseases, and is supposed to have even written a treatise on surgery, now lost. In like manner Trotula and Constantine discuss a number of diseases (*e. g.* fistula, hæmorrhoids, vesical calculus, etc.), the treatment of which properly belongs to surgery; and, according to Malgaigne,[4] the latter author was the first to recommend a metallic pad for the retention of hernial protrusions. Yet with all these writers the treatment of such surgical diseases as are considered is almost entirely medical, and operative surgery is rarely suggested. Roger of Parma appears to have been the pioneer in Europe of a surgical practice distinct from medicine, and more especially of operative surgery. Gui de Chauliac declares[5] that until the time of Avicenna both medicine

[1] *Institut. Hist. Med.*, cap. xxxi. § 431, p. 350. Haller does not mention Salernum. He says, "Sanxit preterea, Martiano puto medico suadente, ut certe in Sicilia omni quinquennio corpus humanum dissecaretur, utque ad eam solennem anatomen ex universo regno medici et chirurgi convocarentur" (*Bibliotheca Anat.*, tom. i. § cxii.).

[2] Huillard-Bréholles, *op. cit.*, tom. iv. pars i. titulus xlvi.

[3] Mondini di Luzzi introduced human dissection at Bologna in 1315. It was authorized at Montpellier in 1376.

[4] *Œuvres d' Ambroise Paré, Introduction*, p. xxvi.

[5] Vid. *Gloss. Quatuor Magist.*, edited by Daremberg, *Introduction*, p. xiii. An excellent résumé of the history of mediæval surgery may be found in the

From the commentary of "the Four Masters" we learn that the Salernian surgeons recognized the diagnostic importance of nausea, vomiting, constipation, and a flow of blood from the ears in injuries of the head.[1] They also did not hesitate to resort to the trepan in depressed fractures[2] and for the relief of intra-cranial extravasations,[3] and admitted the existence of fractures of the skull from *contre-coup*.[4] *Hernia cerebri* was treated by sponge-pressure and the use of caustics.[5] They were familiar with the ligation of blood-vessels,[6] both direct and mediate or *en masse*, and enjoin the application of a ligature both above and below the opening in wounds of the carotid artery or jugular vein.[7] Wounds of the heart, lung, diaphragm, stomach, and liver were considered almost invariably mortal, and the surgeon is advised to decline the treatment of patients suffering from such injuries—"ne igitur nostro vitio videantur perire."[8] Our disgust at the apparent heartlessness of such selfish advice must be tempered by the reflection that in those days the life of the surgeon might prove the penalty of his want of success. In penetrating wounds of the intestine, complicated with protrusion of the wounded gut, it is directed to envelop the bowels in the warm abdomen of a slaughtered animal until their natural color and temperature are restored; a canula of alder-wood is then inserted into the wounded intestine, over which the wound is neatly stitched; the protrusion must then be carefully washed with warm water and returned into the abdominal cavity, enlarging for this purpose, if necessary, the opening through the abdominal walls.[9] Mention is made of the lupoid ulcer called "noli me tangere,"

[1] *Gloss. Quatuor Magist.*, pp. 11 and 15. [2] *Id.*, p. 17.
[3] *Id.*, p. 12. [4] *Id.*, p. 12. [5] *Id.*, p. 16.

[6] It may not be superfluous to remind the reader that ligation of vessels for the control of hæmorrhage was recommended by Celsus (lib. vii. cap. 19, 22), by Archigenes (Oribasius's *Collect. Med.*, lib. xlvii. cap. 13, ed. Daremberg), and by Galen (*De Administ. Anatom.*, iii. 9; *De Method. Medendi*, v. 3). Baas (*Grundriss der Geschichte der Medicin*, p. 158) credits Ætius of Amida (about A. D. 550) with mention of the same operation. Subsequently, the measure seems to have fallen into neglect (though not entirely forgotten), until revived by Paré in the practice of amputation. Paré himself says (*Œuvres*, tom. ii. p. 230) that the only hint which could suggest ligation of vessels to his mind was contained in one of the passages of Galen mentioned above.

[7] *Gloss. Quatuor Magist.*, pp. 19, 46, 48, 167, 226.
[8] *Id.*, p. 66. [9] *Id.*, p. 71.

and its name is said to be derived from the fact that the pulp of the fingers is moist by nature, and as cancer arises from excessive humidity, the moisture of the fingers is especially injurious. It is treated with caustic or the knife, but is often incurable.[1] Cancer of the penis is said to result occasionally from rupture in coition [2]—a statement which Daremberg suggests may have some bearing on the history of syphilis. *Fistula lachrymalis* demands the use of tents of briony, or even the actual cautery.[3] *Fistula in ano* is treated by the ligature or knife.[4] Toothache which resists anodyne applications and fumigations may, as a last resort, warrant extraction of the tooth if it is loose; but if firm it must not be extracted—"quia timendum est ne periculum incurvat (sic?) propter humorum dissolutionem vel substantiam cerebri"[5]—an unintelligible caution which recalls the similar absurdity of Gariopontus.[6] The operation of lithotomy is described with considerable minuteness.[7] Fractures of the os brachii, involving the medulla, are said to be generally fatal. Ordinary fractures of this bone are "set" by extension and counter-extension: a temporary dressing (*plagella*) soaked in albumen is then applied, and on the third day regular splints (*ferulæ*), which are also directed to be renewed every third day. Compound fractures are treated with fenestrated splints. The time-honored and judicious caution with regard to tight bandaging for fear of mortification is carefully recorded.[8] On the whole, the commentary of "the Four Masters" is the most interesting and intelligent work of Salernian origin which has been preserved to us, and is even worthy the attention of our modern surgeons.

Such was the School of Salernum in her prime, during the twelfth and thirteenth centuries. It remains only to consider the sources of her unrivalled reputation during the Middle Ages, and the causes of her rapid decline. The thoughtful reader will not have failed to notice how very few improvements in medical art, how few personages whose names are prominent in

[1] *Gloss. Quatuor Magist.*, p. 146.
[2] *Id.*, p. 147.
[3] *Id.*, p. 151.
[4] *Id.*, p. 161.
[5] *Id.*, p. 181.
[6] Vid. supra, p. 12, note 1.
[7] *Gloss. Quatuor Magist.*, p. 194.
[8] *Id.*, p. 213.

medical history, have engaged our attention in the preceding pages. He will therefore naturally inquire what was the source of the widespread fame of a school distinguished neither by her notable discoveries in science nor the great names of her teachers. The chief element in establishing the glorious reputation of the School of Salernum was doubtless the obstinate conservatism and unswerving devotion to the doctrines of the ancients which characterized her teachings. Founded in the darkest period of the Middle Ages, a period marked by the prevalence of ignorance, bigotry, and superstition, Salernum preserved, amidst the gloom that had settled upon Europe, a few rays of that intellectual light which had shone so brightly in the golden ages of Grecian and Roman history. These rays, magnified and rendered more conspicuous by the intellectual night which surrounded her, shone forth as a beacon to the eager minds of men groping for more light to guide their uncertain steps. The name of Salernum became synonymous with intellectual advancement, and was repeated with enthusiasm wherever the human mind, dissatisfied with the present, looked forth in hope to a brighter future. In later ages, as the mother and model of our modern university system, Salernum, though fallen far from her ancient glory, yet deserved and enjoyed the esteem and admiration of her numerous and vigorous offspring. Baas concludes his sketch of the ancient school with the following judicious summary of her *rôle* in the development of medicine: "The profound importance of Salerno as regards medical culture depends not upon any memorable contributions to science which proceeded from her school, but rather on the fact that within her 'Hippocratic union' the principles of the great physicians of antiquity (cultivated here originally and independently, as they were at a later period by the Arabians), albeit in a corrupted form, were preserved to posterity. Moreover, her school (after the example of the Arabians, indeed) maintained and secured the influence of the laity upon the progressive development of medicine at a time when the priests were again particularly active in passing off their stale devices for a science of healing. The school promised to free work a field of action, for, so far as was possible at this period, it held itself aloof from the fetters of the fanatical Church. In this way it attain-

ed an extended international importance, for here taught, studied, and interchanged ideas Arabians and Jews as well as Christians. Thus also Salerno effected the introduction of Arabian pharmacy and therapeutics into the medicine of the West. It is, too, in the highest degree probable that from the Arabians Salerno adopted the principles of organization of her school—principles which she subsequently introduced into the European universities, to become strong and domesticated among us, but which may yet be regarded as originally offshoots of Oriental civilization."

The decline of the school was as rapid as her career had been brilliant and glorious. Perhaps the most serious blow at her supremacy was the foundation by Frederick II. in 1224 of the University of Naples, an institution upon which that prince bestowed unusual privileges, and in aid of which he and his successors authorized much special legislation.[1]

In the year 1224 a decree of the emperor forbade his Neapolitan subjects to seek instruction at any other university; and so strictly was this decree enforced that the question was submitted to the emperor's decision whether, by the terms of the law, the ordinary primary schools of the kingdom were interdicted. In the next year a revolt of the city of Bologna provoked the emperor to order the closure of all the schools of that city and the distribution of their students between the Universities of Naples and Padua. An alliance of the Lombard cities of Northern Italy enabled Bologna, however, to defy the emperor and retain her schools, and in the year 1227 the obnoxious decree was revoked.[2] Charles I. of Anjou[3] in 1266 restored the university, which had suffered considerably by the wars of the French succession, and his successors of the House of Anjou, especially Robert I.[4] and Queen Joan II.,[5] greatly enlarged its privileges and immunities. Thus was established a formidable rival to Salernum in her own immediate neighborhood. But the University of Naples was by no means the only competitor against which the

[1] Giannone, *op. cit.*, book xvi. chap. iii.
[2] Malgaigne, *Œuvres d'Ambroise Paré*, *Introduction*, p. xxxii.
[3] Giannone, *op. cit.*, book xx. chap. i. & ii.
[4] *Id.*, book xxii. chap. vii., and Mazza, *op. cit.*, p. 64 A.
[5] *Id.*, book xxv. chap. ix.

ancient school found herself compelled to struggle. The School of Montpellier, the University of Bologna (which in 1224 had no less than 10,000 students), and the Universities of Padua and Paris, all entered with zeal and vigor into the struggle for pre-eminence.

Another cause probably influential in hastening the decline of the School of Salernum was that very conservatism which for many ages had been her chief pride and her boast. The thirteenth century marks the beginning of that period of intellectual awakening which culminated in the great revival of learning three centuries later. Daremberg has happily styled this period the "*Renaissance anticipée.*" The human mind, gradually freeing itself from the fetters of ignorance and superstition, and exulting in its new-found liberty, was radical and progressive. The conservatism of Salernum was timid and halting. Roger Bacon in England, Lanfranc and Gui de Chauliac in France, Mondini at Bologna, Montagnana, Bertapaglia, and Savonarola at Padua, found no successful rivals at Salernum to contest their fame. Her ancient school was, to use a vulgar expression, "behind the age," and, after a short but earnest struggle with her numerous, youthful, and vigorous competitors, she sunk into a mediocrity brightened only by the reflection of a glory departed.[1] Robert I. in 1342, when renewing the decree of the emperor Frederick II. (which ordained the closing of all schools in his kingdom save those of Naples), did indeed except Salernum, "on account of her antiquity and the traditions of his predecessors;"[2] in like manner, Queen Joan I. in 1365 confirmed[3] to Salernum the privileges granted by Frederick; and King Ladislaus in 1413 exempted her alumni and professors from all taxes, duties, and tribute.[4] But the organization of her school was alone preserved; its vitality had already departed. Even as early as the middle of the fourteenth century

[1] De Renzi enumerates more than one hundred physicians who flourished at Salernum under the princes of the House of Anjou (1266–1435). Most of these, however, are known only by name or as authors of works no longer extant.

[2] Giannone, *op. cit.*, book xxii. chap. vii., and Mazza, *op. cit.*, p. 64 A.

[3] Sprengel, *op. cit.*, tom. ii. p. 366.

[4] Mazza, *op. cit.*, p. 64 F, and p. 65 A.

the poet Petrarch speaks[1] of the School of Salernum as a memory of the past—"Fuisse hic medicine fontes fama est; sed nihil est quod non senio exarescat." Giannone, writing of the University of Naples early in the eighteenth century, says: "Though it yields to Salernum in antiquity, yet according to the vicissitudes of worldly things it hath been so much exalted above the other that now it not only contends for the pre-eminency, but for the learning and number of its professors; and so much hath it become superior as the one city excels the other in magnificence and eminence."[2] The last prominent appearance of the School of Salernum was in 1748, when a dispute at Paris relative to the rank and precedence of physicians and surgeons was referred to Salernum for an authoritative and final decision. In 1811 a formal decree reduced the time-honored mother and model of all the European universities to a mere gymnasium or preparatory school, of which a visitor from our "Modern Athens" in 1820 ventures to write as follows: "There is still a medical school at Salerno, but in great obscurity, at which a few students are taught for the purpose of being sent down into the Calabrias, though probably without much profit to the inhabitants."[3] Daremberg, with the genuine enthusiasm of an historian of medicine (and, I may add, of a Frenchman), concludes his *Introduction* to *L'École de Salerne* in the following terms: "I visited Salerno twice in 1849; I wandered sadly through the streets once animated by every movement of science and medical practice; I sought in vain some trace or reminder of the illustrious masters whose voice had resounded in the midst of the most troubled ages. Who could tell me what manner of persons were Petronius, Cophon, the Platearii, Bartholomæus, and the venerable Musandinus, and the elegant Maurus to whose lessons Ægidius of Corbeil had listened? Who remembered the beautiful Trotula or the artful Constantine? In default of a great medical institution, what monument, piously consecrated to all the glories of the school, could recall to me some features of its early history? No echo of tradition, not one stone of the ancient edifice; not one manuscript in a single library, not even a good

[1] *Itinerarium.*

[2] *Op. cit.*, book xxv. chap. ix.

[3] *The Political State of Italy*, by Theodore Lyman, Jr. (Boston, 1820), p. 303.

edition of the *Regimen Salernitanum* in the house of Dr. Santorelli, the only physician in whom the old remembrances were not extinguished. But at least in those streets to-day almost deserted, on this square where the professors and their students were wont to assemble, on the shores of that ever-glorious sea which bathes the feet of the city, I could inhale the air which 'the Masters' had breathed."

"Stat magni nominis umbra."

APPENDIX.

NOTE A (see Page 6, Note 3).

According to Leo Marsicanus, the saint appeared to the emperor in a vision, and declared to him, "Cum primum hodie surrexeris, in egestione urinæ tuæ tres lapillos non parvos mingere habebis, et ex tunc dolore isto amplius non laborabis. Et scias quia ego sum frater Benedictus."

NOTE B (see Page 33, Note 2).

Mazza mentions the names and writings of the following authors, but makes no reference to the period in which they flourished:

Antonius Solimena	wrote...	*De Pulsibus et Urinis.*
Boccutius Grillo	"	...*De Practica Medicinæ M. S. de Differentiis Pulsuum et Febrium.*
Delius Penella	"	...*Practica Omnium Accidentium quæ Humanum Corpus Lædere Possunt.*
Joannes Antonius Vitalis	"	...*Apologia de Capitis Vulneribus, Quæstiones Prœmiales Chirurgiæ, Quæstiones de Capitis Vulneribus*, etc.
Joannes Vincentius de Rogeriis	"	...*De Sede Animæ, De Concursu Activo vel Passivo Mulieris ad Prolem.*
Roger de Procida	"	...*Chirurgia Antiqua.*

NOTE C (see Page 39, Note 2).

TITULUS LXIV.

"De Probabili Experientia Medicorum.

"Quisquis amodo mederi voluerit, officialibus nostris et judicibus se presentet, eorum discutiendus judicio: quod si sua temeritate præsumserit, carceri constringatur, bonis suis omnibus publicatis. Hoc enim prospectum est, ne in regno nostro subjecti periclitentur ex imperitia medicorum."

Page 41, Note 2.

TITULUS LXV.

"Ut Nullus Audeat Practicare, Nisi in Conventu Publice Magistrorum Salerni sit Comprobatus.

"Utilitati speciali prospicimus, cum communi saluti fidelium providemus. Attendentes igitur grave dispendium et irrecuperabile damnum, quod posset contingere ex imperitia medicorum, jubemus in posterum nullum medici titulum prætendentem audere practicare aliter vel mederi, nisi Salerni primitus in conventu publico magistrorum judicio comprobatus, cum testimonialibus literis de fide et sufficienti scientia tam magistrorum quam ordinatorum nostrorum, ad præsentiam nostram, vel nobis a regno absentibus, ad illius præsentiam, qui vice nostra in regno remanserit, [ordinatus accedat], et a nobis vel ab eo licentiam consequatur: pœna publicationis bonorum et annalis carceris imminente iis qui contra hoc nostre serenitatis edictum in posterum ausi fuerint practicare."

Page 42, Note 1.

LIBER III. TITULUS XLVI.

"De Medicis.

"Quia nunquam sciri potest scientia medicinæ nisi de logica aliquid presciatur, statuimus, quod nullus studeat in medicinali scientia, nisi prius studeat ad minus triennio in scientia logicali: post triennium, si voluerit, ad studium medicine procedat, in qua per quinquennium studeat: ita quod chirurgiam, que est pars medicine, infra predictum tempus addiscat. Post quod et non ante concedatur sibi licentia practicandi, examinatione juxta curie formam prehabita, et nihilominus recepto pro eo de predicto tempore studii testimonio magistrali. Iste medicus jurabit servare formam curie hactenus observa-

tam, eo adjecto, quod si pervenerit ad notitiam suam quod aliquis confectionarius minus bene conficiat, curie denunciabit, et quod pauperibus consilium gratis dabit. Iste medicus visitabit egrotos suos ad minus bis in die, et ad requisitionem infirmi semel in nocte, a quo non recipiet per diem, si pro eo non egrediatur civitatem vel castrum, ultra dimidium tarenum auri. Ab infirmo autem quem extra civitatem visitat non recipiat per diem ultra tres tarenos cum expensis infirmi, vel ultra quatuor tarenos cum expensis suis. Non contrahat societatem cum confectionariis nec recipiat aliquem sub cura sua ad expensas pro certa pretii quantitate, nec ipse etiam habebit propriam stationem.

"Confectionarii vero facient confectionem expensis suis cum testimonio medicorum, juxta formam constitutionis nostre, nec admittentur ad hoc ut teneant confectiones nisi prestito juramento: omnes confectiones suas secundum predictam formam facient sine fraude. Lucrabitur autem stationarius de confectionibus suis secundum istum modum: de confectionibus et simplicibus medicinis que non consueverunt teneri in apothecis ultra annum a tempore emptionis, pro qualibet uncia poterit et licebit tres tarenos lucrari. De aliis vero que ex natura medicaminum vel ex alia causa ultra annum in apotheca tenentur, pro qualibet uncia licebit lucrari sex tarenos. Nec stationes hujusmodi erunt ubique, sed in certis civitatibus per regnum ut inferius describitur.

"Nec tamen post completum quinquennium practicabit, nisi per integrum annum cum consilio experti medici practicetur. Magistri vero infra istud quinquennium libros authenticos tam Hippocratis quam Galeni in scholis doceant, tam in theorica quam in practica medicine. Salubri etiam constitutione sancimus ut nullus chirurgicus ad practicam admittatur, nisi testimoniales litteras offerat magistrorum in medicinali facultate legentium quod per annum saltem in ea parte medicine studuerit, que chirurgie instruit facultatem, præsertim anatomiam humanorum corporum in scholis didicerit, et sit in ea parte medicine perfectus, sine qua nec incisiones salubriter fieri poterunt, nec facte (fracta?) curari."

Page 44, Note 1.

TITULUS XLVII.

"De Fidelium Numero Super Electuariis et Syrupis Statuendo.

"In terra qualibet regni nostri nostre jurisdictioni subjecta duos viros circumspectos et fide dignos volumus ordinari, et corporali per

cos prestito sacramento teneri, quorum nomina ad curiam nostram mittentur: sub quorum testificatione electuaria et syrupi ac alie medicine legaliter fiant, et sic facte vendantur. Salerni maxime per magistros in physica hec volumus approbari. Presenti etiam lege statuimus ut nullus in medicina vel chirurgia nisi apud Salernum [vel Neapolim [1]] legat [in regno], nec magistri nomen assumat, nisi diligenter examinatus in presentia nostrorum officialium et magistrorum artis ejusdem. Conficientes etiam medicinas sacramento corporaliter prestito volumus obligari ut ipsas fideliter juxta artes et hominum qualitates in presentia juratorum conficiant. Quod si contra fecerint, publicatione bonorum suorum mobilium sententialiter condemnentur. Ordinati vero, quorum fidei predicta sint commissa, si fraudes in credito ipsis officio commisisse probentur, ultimo supplicio feriendos esse censemus."

. The form of a medical license was as follows (Petri de Vineis, *Epist.*, lib. vi. cap. xiv.):

"Notum facimus fidelitati vestre quod fidelis noster N ad curiam nostram accedens, examinatus, inventus fidelis et de genere fidelium ortus, et sufficiens ad artem medicine exercendam, extitit per nostram curiam approbatus. Propter quod de ipsius prudentia et legalitate confisi, recepto ab eo in curia nostra fidelitatis sacramento, et de arte ipsa fideliter exercenda juxta consuetudinem juramento, dedimus ei licentiam exercendi artem medicine in partibus ipsis: ut amodo artem ipsam ad honorem et fidelitatem nostram et salutem eorum qui indigent, fideliter ibi debeat exercere. Quocirca fidelitati vestre precipiendo mandamus quatenus nullus sit, qui predictum N fidelem nostrum super arte ipse medicine in terris ipsis, ut dictum est, exercenda, impediat de cetero vel perturbet."

[1] The editor of the *Hist. Diplomat. Frid. II.* says the words "vel Neapolim" are wanting in the Latin and Greek MSS., as the school of medicine at Naples was not instituted in the reign of Frederick II. I am ignorant of the authority for this statement.

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